



Moloka`i Community Plan Update

Planning Department /CPAC Draft

Prepared for:

Community Plan Advisory Committee (CPAC)

County of Maui - Department of Planning

October 2015

**FOR CPAC
REVIEW
AT
OCT. 21 - 22
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1 | INTRODUCTION

Molokaʻi is an island tremendously rich in natural and cultural resources. Its physical geography makes it one of the most striking places in the world to live and visit and its bountiful agricultural lands are among the most fertile in the State. Molokaʻi is famous for having the highest sea cliffs in the world, the most intact pre-contact system of man-made fishponds that exist anywhere in Polynesia, and the longest contiguous fringing coral reef system in the United States.

Molokaʻi is often referred to as the “last Hawaiian Island”. It is the most rural of the Hawaiian Islands and, excluding Niihau, has the highest percentage of native Hawaiians in the State. Many Molokaʻi residents still practice a subsistence based lifestyle, relying on fishing, hunting, farming, and gathering for food, spiritual wellbeing, and cultural practices. Subsistence and bartering also play a role in the island economy. There is a strong sense of ʻohana on Molokaʻi. Large extended families are common and sharing resources is customary. For many Molokaʻi residents maintaining close ties to the ocean, land, and ancestral places fosters a sense of place and connectedness to past, present, and future generations.

Many Molokaʻi families have lived on the island for generations, while some are more recent arrivals. Key events have shaped the structure and vitality of Molokaʻi's economy and land use and in turn have influenced the population makeup and employment of the island. Today, the people, brought together from many different cultures, share common values – a love for ʻohana, the land and sea, and the rural lifestyle. The tightly-knit community ~~is mutually supportive,~~ has an array of expertise and background, and a strong desire to be part of the global economy ~~more self-reliant~~ and sustainable.

But in spite of these great strengths, Molokaʻi has historically had a limited ~~an undiversified and unstable~~ economy partially due to the island's remote location, small population base, and strong control by a few major landowners. Some Molokaʻi residents are very protective of their rural and traditional-based lifestyles, and have resisted economic development centered on tourism and real estate. Establishing a more vibrant job producing economy in harmony with Molokaʻi's rural lifestyle, and cultural and environmental resources will necessitate more creativity, harder work, and a greater spirit of entrepreneurialism than required for other economies with greater economies of scale. Molokaʻi's natural environment, cultural resources, and agricultural lands are key assets that, if properly managed and protected, will help to strengthen and diversify the island's economy and ensure opportunities for future generations.

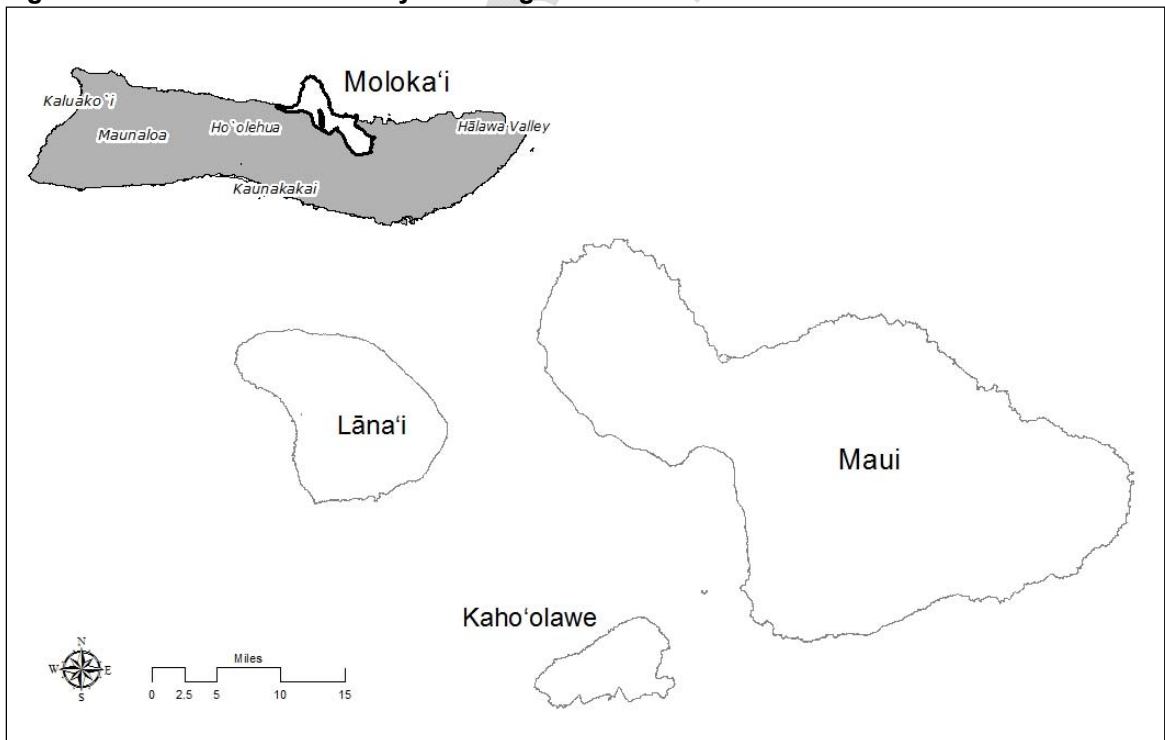
This community plan identifies current and anticipated future conditions and needs on Molokaʻi. These conditions and needs are addressed throughout the plan by identifying strategic planning goals, policies, and actions that will guide decision-making and implementation through 2035. Chapter 1 provides a general description of the planning area, the planning framework provide by the Maui County General Plan and the State Plan, an overview of the community plan update process, plan organization, fast facts about Molokaʻi, and a summary of the major problems and opportunities facing the island.

OVERVIEW OF MOLOKAʻI COMMUNITY PLAN AREA

Molokaʻi is one of four islands that make up the County of Maui (see Figure 1.1). Its elongated shape embraces widely varying topographic and climatic regimes. The island of Molokaʻi is comprised of approximately 172,000 acres (including the northern peninsula of Kalaupāpā) formed by a series of three volcanoes. The peninsula of Kalaupāpā, and some of the surrounding area on the northern coast make up Kalawao County, which is administered by the State of Hawaii's Department of Health. [The Kalaupāpā National Historical Park managed by National Park Service.](#)

Kaunakakai, the island's major population and commercial center, is located about midway along the south coast. The island's only resort destination area is located at Kaluakoʻi, on the western end of the island. Hotel Molokaʻi [and Molokai Shores](#), just outside of Kaunakakai, also offers limited visitor accommodations. There are small plantation communities in Maunaloa and Kualapuʻu, along with Hawaiian homestead settlements in Hoʻolehua, Kapaʻakea, Kamiloloa, [One Aliʻi](#) and Kalamaʻula. The settlement pattern along the southeast coast which becomes more rural and scattered as it extends from Kaunakakai to Hālawā Valley. (See Appendix 1.1 for a summary of Molokaʻi history).

Figure 1. 1 Molokaʻi Community Plan Region



1
2

FAST FACTS ABOUT MOLOKAʻI

PHYSICAL FEATURES

- Molokaʻi is 261 square miles or 172,000 acres (includes Kalaupapa).
- The island is about 38 miles long and 10 miles wide with 88 miles of coastline.
- It is the fifth largest island of the eight main Hawaiian Islands.
- Kamakou is The highest peak~~elevation is~~ at 4,970 feet (1,514 meters).

POPULATION / DEMOGRAPHICS (2010 Census)

- The first Hawaiian Homestead Settlement was established on Molokaʻi at Kalamaʻula in 1921 by passage of the Hawaiian Homes Commission Act.
- The 2010 population was 7,255 residents (excluding Kalawao County); a decrease of approximately 150 people from 2000.
- Native Hawaiians made up 24% of the 2010 population (excluding Kalawao County).
- Population by age: 15% was 0 to 9 years, 14% was 10 to 19 years, 47% was 20 to 59 years, and 24% was 60 years and over.
- Average daily visitor count in 2012 was 707 and there were 429 visitor units.

FLORA AND FAUNA

- Molokaʻi has 79 endangered and 3 threatened terrestrial species and 11 endangered and 2 threatened marine species listed under the Endangered Species Act.
- The East Molokaʻi Forest Conservation Area covers 40,000 acres.
- Molokaʻi's south shore has the longest continuous fringing coral reef in the U.S.
- Pāpōhaku Beach is one of the state's longest white sand beaches and contains one of the last relatively intact dune systems in Hawaii.
- The Nature Conservancy's Moʻomomi Preserve and the Molokai Land Trust's ~~Moʻomomi Preserve and~~ Mokio Preserve contain sand dunes, lithified sand formations, rare endemic Hawaiian coastal plant species, nesting seabirds and green sea turtles, the occasional Hawaiian monk seal, and Hawaiian cultural sites.

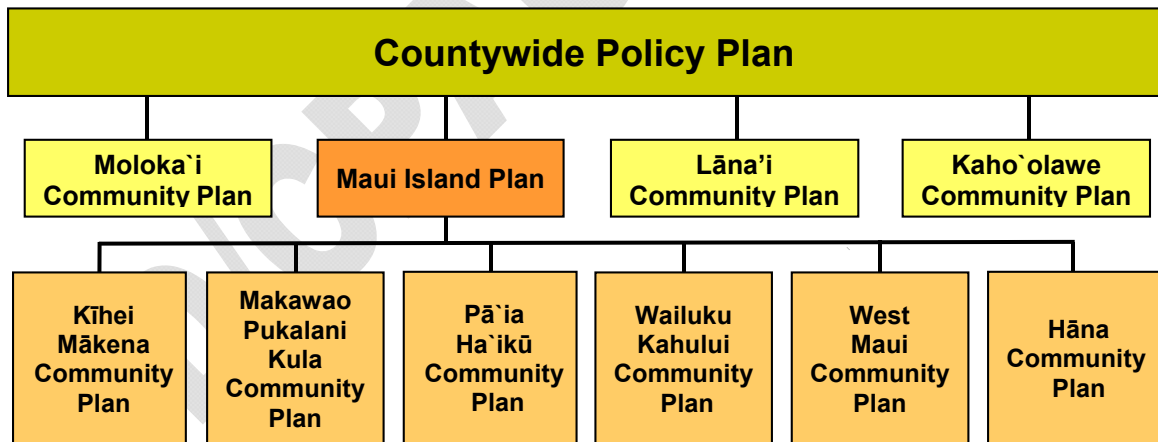
1.1 MAUI COUNTY GENERAL PLAN STRUCTURE

A. GUIDANCE FROM THE COUNTYWIDE POLICY PLAN AND HAWAII STATE PLANS

The County of Maui General Plan consists of the Countywide Policy Plan, the Maui Island Plan, and the nine community plans (see Figure 1.2). The General Plan was adopted in 1980 and updated in 1990; it sets forth the long-term social, economic, environmental, and land use needs of the County. The Countywide Policy Plan was adopted in 2010, the Maui Island Plan was adopted in 2012, and initiation of the community plan updates began in 2010. The General Plan conforms to the Hawai'i State Plan and follows guidance set forth in the State Functional Plans.

In 2011, the Hawai'i State legislature established sustainability as a state priority by adopting priority guidelines and principles to promote *Sustainability* (HRS §226-108) into the Hawai'i State Planning Act. In 2012, the Hawai'i State legislature adopted *Climate change adaptation priority guidelines* (HRS §226-109). The adaptation policy specifies that county or state plans must consider potential climate change impacts to agriculture, conservation lands, coastal and nearshore marine areas, natural and cultural resources, energy, the economy, and many other factors. Chapter 2 further discusses how these guidelines influence or shape the Community Plan.

Figure 1. 2 County of Maui General Plan Organization



From 2004 to 2012, the Maui County Code (MCC) was modified to create new requirements within Chapter 2.80B General Plan and Community Plans. Section 2.80B.070 provides the specific requirements for the community planning process, including requiring that the community plans implement the General Plan's vision, principles, goals, and policies related to the following core themes listed in the Countywide Policy Plan:

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- Protect the Natural Environment
- Preserve Local Cultures and Traditions
- Improve Education
- Strengthen Social and Healthcare Services
- Expand Housing Opportunities for Residents
- Strengthen the Local Economy
- Improve Parks and Public Facilities
- Diversify Transportation Options
- Improve Physical Infrastructure
- Promote Sustainable Land Use and Growth Management
- Strive for Good Governance

B. THE 2016 MOLOKA'I COMMUNITY PLAN UPDATE

The Moloka'i Community Plan was initially adopted in 1984 and updated in 2001. The 2016 Moloka'i Community Plan Update incorporates the new requirements of MCC 2.80B including:

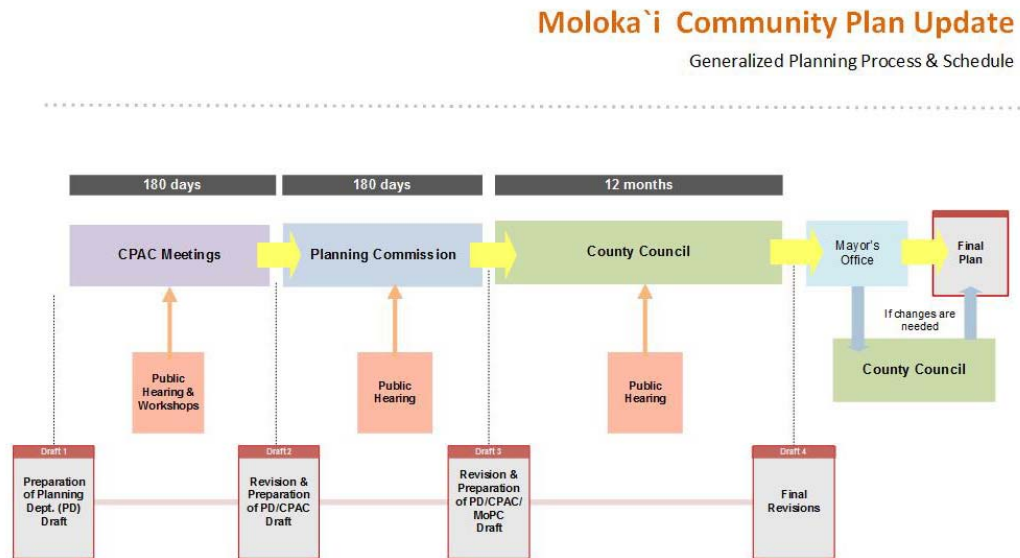
- A list of scenic sites and resources.
- A description of a projected multi-modal transportation system.
- A list of streetscape and landscaping principles and desired improvements.
- Implementation requirements that identify priorities, timelines, estimated costs, and the County department accountable for the completion.

The Planning Department's Long Range Division worked with the Moloka'i community, stakeholders, agencies, the Moloka'i Community Plan Advisory Committee (CPAC), the Moloka'i Planning Commission, and the Maui County Council between 2010 and 2016. Technical studies and issue papers referenced during the update process are identified in Appendix 1.2.

MCC 2.80B specifies that the CPAC be composed of thirteen members appointed by the County Council and the Mayor. Planning Department staff and the CPAC conduct meetings and workshops that include public participation. The CPAC's recommendations are forwarded to the Moloka'i Planning Commission for public hearings and review. The draft plan is then sent along with any Planning Department comments or revisions to the County Council for review and adoption by ordinance. This process and the timeframe are summarized graphically in Figure 1.3.

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1 **Figure 1.3 Generalized Community Planning Process & Schedule**



2 Prior to embarking on the Community Plan update, the Planning Department's Long Range
3 Division conducted four community engagement events and numerous interviews to hear
4 directly from residents about their ideas and concerns (see Appendix 1.3). The events included:

- 6 ➤ June 2010 - Open house on issues, needs, and ideas.
- 7 ➤ October 2010 - Two workshops on vision, issues, goals, and strategies.
- 8 ➤ November 2014 - Open house to present the feedback from previous events.

10 **C. PLAN ORGANIZATION**

12 The 2016 Molokaʻi Community Plan Update is organized into ten chapters with maps and
13 appendices. Chapters provide the related background, existing conditions, issues, and goals,
14 policies and actions. Goals are intended to describe a desirable condition of the island by the
15 year 2035. They are intentionally general, but are attainable. Policies are not intended as
16 regulations, but instead provide general guidelines for County decision makers, departments,
17 and collaborating organizations working toward attainment of the goals. Implementing actions
18 are specific tasks, procedures, programs, or techniques that carry out policies. Actions may
19 be implemented by a lead County agency or by another entity, such as the State or non-profit
20 groups assisted by the County. The Molokaʻi Community Plan is not intended to be used in
21 the review of applications for ministerial permits, which are permits that do not involve judgment
22 or discretion and are issued based on established criteria, or a set of adopted standards as
23 established by law.

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- 1 Chapter 1 provides an introduction, followed by Chapter 2 which explores Molokaʻi's future
2 vision, and discusses sustainability and climate change adaptation. Chapters 3 and 4 discuss
3 Molokaʻi's environment, and natural, cultural, historic, and scenic resources, as well as hazard
4 mitigation and climate change adaptation.
5
- 6 Chapter 5 discusses economic development strategies to diversify the economy based on the
7 Molokai'i Economic Development Issue Paper and feedback from community engagement
8 events and interviews. Chapters 6 and 7 discuss land use, housing, and community design
9 policies and actions that will shape the future location and form of development.
10
- 11 Chapters 8 and 9 discuss the existing and future needs for infrastructure and public facilities
12 and services. The governance section looks at what changes in the system and function of
13 governance are needed to guide the community toward a sustainable future. Chapter 10
14 discusses implementation and monitoring and also prioritizes the list of actions from previous
15 chapters including cost estimates, timelines, and the implementing agency. The
16 implementation table will facilitate funding decisions during the County budget process.
17

1.2 PROBLEMS AND OPPORTUNITIES

INTRODUCTION

The following outline of the problems and opportunities that Molokaʻi faces represents not only issues that the county government must address but also top concerns expressed by the community through public outreach events and deliberations of the Community Plan Advisory Committee and Molokaʻi Planning Commission.

It is important to clearly define a problem in order to figure out how to solve it, likewise, it is also important to have a critical understanding of opportunities that exist within the community and how to best take advantage of them in order to create a more sustainable, resilient, and livable future for Molokaʻi.

PROBLEMS

- A. Economic Activity and Socio-Economic Characteristics:** A lack of economic activity is one of the most significant problems facing the community. There is a lack of economies of scale and economic diversity, and therefore a lack of job opportunities. Molokaʻi has lower incomes, higher unemployment rates, and a higher number of people receiving public assistance when compared statewide.¹ These socio-economic challenges have contributed to the occurrence of substance abuse, domestic violence, crowding, and generational welfare.
- B. Low Education Level:** The average education level on Molokaʻi is relatively low when compared to the rest of the State. While some youth pursue higher education and are able to live and work on Molokaʻi, many do not obtain post-high school education, or choose not to return to the island after college. This creates a “brain drain” in the community that directly impacts the economic vitality of Molokaʻi.
- C. Water:** Water is essential for every-day life, natural systems, agriculture, and economic growth on Molokaʻi. Molokaʻi has sufficient water supply to meet current demand; however critical water issues include the cost of storage and distribution infrastructure, ensuring aquifer sustainability and water quality, and determining allocations for multiple users as demand grows in the future.
- D. Transportation:** As one of the least populated islands in the most isolated island chain in the world, Molokaʻi suffers from expensive transportation costs for freight, goods, and people. Limited freight transportation to and from the island contributes to higher costs for groceries, fuel, and other goods and complicates the export of Molokaʻi

¹ John M. Knox & Associates, Inc. (December 2010). *Molokaʻi Economic Development Issue Paper*.

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1 produce. Limited airline and ferry transportation options impact both the ability of
2 tourists to visit the island as well as opportunities for residents to travel off-island.

3
4 **E. Cost of Energy:** Molokaʻi faces some of the highest electricity costs in the nation
5 which presents challenges for businesses and residents.

6
7 **F. Erosion and Sedimentation:** Erosion is an issue on Molokaʻi that is negatively
8 impacting soils, streams, fishponds, wetlands, coastal waters, and reefs. While
9 erosion is being actively addressed by a number of organizations and partnerships,
10 continued work is needed to address this problem. Erosion is caused by runoff and a
11 number of land use activities including ranching, farming, and development, as well as
12 forest damage caused by feral ungulates. Siltation of Molokaʻi's reefs and coastal
13 waters is having detrimental effects on fish, limu, and other ocean resources which the
14 Molokaʻi community depends on for subsistence fishing and gathering.

15
16 **G. Housing:** The availability of workforce housing and the variety of housing types on
17 the island are limited. [There is a lack of fully entitled land to build new housing in](#)
18 [locations conducive to workforce housing. There is a limited variety of housing types](#)
19 [available to meet the needs of Molokaʻi residents.](#) ~~There is a lack of entitled land to~~
20 ~~build new housing and there is a limited variety of housing types available to meet the~~
21 ~~needs of Molokaʻi residents.~~

22
23 **H. Climate Change:** Climate change will become increasingly serious before the middle
24 of the 21st century and will impact Molokaʻi's economy, the built environment, historic
25 and cultural resources, infrastructure systems, ecosystems, and natural resources.

26 27 28 **OPPORTUNITIES**

29
30 **A. Strong Caring Community:** Molokaʻi is a special place with a distinctly rural Hawaiian
31 lifestyle. Unlike many other places, residents still help each other with no strings
32 attached. There are an abundance of community luaus and a significant number of
33 extended families living together or in close proximity. There is a feeling of sharing,
34 belonging, and community which should be preserved.

35
36 **B. Cultural Resources and Traditions:** Molokaʻi has an abundance of cultural and
37 archaeological resources and a strong connection with cultural traditions and practices
38 that provide a solid foundation for the future. [The island is purported in oral tradition](#)
39 [to be the birthplace of hula. It has over 100 sites on the National Register of Historic](#)
40 [Places distributed throughout the island.](#) As a result, development of a new model of
41 sustainable tourism appears to be a real possibility. This alternative approach

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described in the 2006 *Moloka'i Responsible Tourism Initiative*² is based on the distinctive characteristics and attributes of the island

C. Distinctive Rural Character: Moloka'i's natural beauty, rural character, are key assets of the island. Unlike other islands in the state, Moloka'i's beaches are still generally accessible and uncrowded. In addition, the rural character and genuine sense of aloha is a draw for many visitors, affording an experience that is different from other islands. Based on several community workshops and interviews, it's clear that a slow and cautious approach to future development on the island is preferred by many. Future growth on the island should build on Moloka'i's strengths while maintaining Moloka'i's uniqueness.

D. Entrepreneurial Spirit: Many of Moloka'i's residents live there because they value the sense of community and lifestyle of the island. Since employment opportunities are limited, many residents have turned to starting and running their own businesses. This trend is evident in Kaunakakai, where almost all of the businesses are owned by local residents, some of whom have successfully maintained their operations over several decades.

E. Community Environmental Restoration: There are various ongoing programs and partnerships to restore Moloka'i's watersheds and ecosystems. Environmental restoration is an opportunity for the community, youth, large landowners, and government agencies to share common goals of restoring and protecting Moloka'i's environment. Working together will not only accelerate environmental restoration but will also help build trust between different groups, foster a sense of stewardship responsibility, and expose youth to careers in environmental restoration.

F. Natural Environment: Moloka'i's natural environment offers many opportunities to move toward a more sustainable future. With abundant agricultural lands, a year-round growing season, and an adequate supply of water, Moloka'i has the capacity to grow produce for both on-island consumption and export. Subsistence resources are relatively abundant and support an integral component of the Moloka'i lifestyle. Additionally, numerous opportunities exist to produce renewable energy on-island.

² McGregor, Davianna Pomaikai, PhD (2006). *Molokai Responsible Tourism Initiative – A Community Based Visitor Plan for Molokai*.

2 | MOLOKA`I'S FUTURE

This chapter provides the community plan's vision and strategic framework that guide the key policies and actions needed to address the major issues that face the island in the next 20 years. The components of this strategic framework include:

- 2.1 Moloka`i Vision Statement
- 2.2 Population Growth Forecast
- 2.3 Sustainability and Climate Change Adaptation

The 2001 Moloka`i Community Plan vision statement expressed the desires and hopes of the community at that time. In 2015 the CPAC carefully reviewed and discussed the 2001 vision statement. The CPAC agreed to retain many of the previous thoughts and ideas while also shaping a new vision for the future. The 2001 vision statement and the new vision statement are respectfully provided on the following pages.

~~The Moloka`i Vision Statement in Section 2.1 was carried over from the 2001 Community Plan and reviewed by the CPAC. It articulates the community's belief in who it is, what it wants to become, and how to achieve that aspiration.~~

The population discussion in Section 2.2 presents a brief analysis of past and future population trends. The *Socio-Economic Forecast Report*¹, produced by the County of Maui Planning Department is the primary source of data for this discussion.

Finally, in response to the State of Hawai`i's adoption of the 2011 priority guidelines and principles to promote Sustainability and the 2012 Climate change adaptation priority guidelines, Section 2.3 discusses how climate change adaptation strategies and measures to develop a more sustainable island community are woven into the Plan.

¹ County of Maui, Department of Planning. *Socio-Economic Forecast Report*. September 2014

1 **2.1 MOLOKA`I VISION STATEMENT**

2

2001 Vision Statement

Moloka`i is the last Hawaiian Island. We who live here choose not to be strangers in our own land. The values of aloha `aina and malama `aina (love and care for the land) guide our stewardship of Moloka`i's natural resources, which nourish our families both physically and spiritually. We live by our kupuna's (elders) historic legacy of pule o`o (powerful prayer).

We honor our island's Hawaiian cultural heritage, no matter what our ethnicity, and that culture is practiced in our everyday lives. Our true wealth is measured by the extent of our generosity. We envision strong `ohana (families) who steadfastly preserve, protect and perpetuate these core Hawaiian values. We are a wise and caring community that takes pride in its resourcefulness, self-sufficiency and resiliency, and is firmly in charge of Moloka`i's resources and destiny.

We envision a Moloka`i that leaves for its children a visible legacy: an island momona (abundant) with natural and cultural resources, people who kokua (help) and look after one another, and a community that strives to build an even better future on the pa`a (firm) foundation left to us by those whose iwi (bones) guard our land.

3

2015 Vision Statement

Molokaʻi is an island steeped in tradition and guided by the values of aloha
`āina and mālama `āina (love and care for the land) which guide our
stewardship of Molokaʻi's natural resources. We honor our island's Hawaiian
cultural heritage, no matter what our ethnicity, and that culture is practiced in
our everyday lives. We kokua (help) one another while our true wealth is
measured by the extent of our generosity. We envision strong
`ohana (families) who steadfastly preserve, protect and perpetuate these
core Hawaiian values.

Our community is resourceful and resilient and passionate about controlling
the destiny of our island. We will work diligently to attain energy and food
independence and strive to strengthen Molokaʻi's economy while retaining
our distinctive rural lifestyle.

We will prepare our keiki for the future with a strong education and aim to
offer a range of opportunities so they can become productive members of our
community. We will care for our kupuna and carry their legacy forward to help
shape ~~the~~ Molokaʻi's ~~future of this island.~~

Through our collective efforts, we will perpetuate Molokaʻi's tradition of an
island momona (abundant) with natural and cultural resources, and strive to
build an even better island community for the generations to come.

2.2 POPULATION GROWTH FORECAST

Population growth can have both positive and negative impacts on a community. It can exacerbate infrastructure capacity deficiencies, place additional demands on natural resources, shift the cultural and social makeup of the population, and change the physical landscape. Population growth can also contribute to the quality of life of a community by stimulating the economy, growing the tax base, providing employment opportunities, and providing economies of scale. The Molokaʻi Community Plan aims to address community needs and provide economic opportunities to retain Molokaʻi's families, and manage ~~ensure that~~ future resident and visitor population growth so that it does not compromise the island's natural resources, infrastructure, and services.

Population change on Molokaʻi in the coming decades will occur through natural population growth (live births minus deaths), in-migration, and out-migration. While the island experienced a moderate population decline from 2000 to 2010, the population is forecasted to moderately increase during the Community Plan's 20 year planning horizon, according to the State of Hawaiʻi Department of Business, Economic Development and Tourism (DBEDT).

A. HISTORIC TRENDS AND POPULATION FORECAST

The 2014 County of Maui *Socio-Economic Forecast*² is a planning tool based on projections developed by DBEDT. The population projections are based on trends and model assumptions that are absent of policy changes or directives. The population growth forecast provides a starting point for discussions about the island's future.

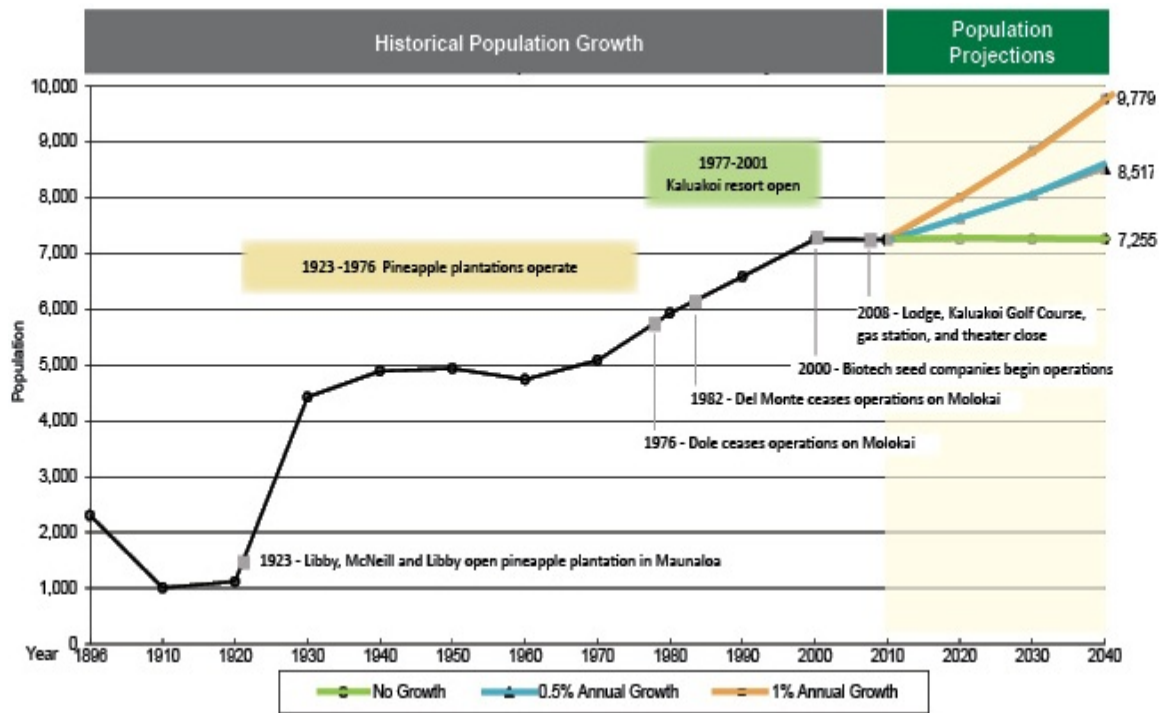
The 2010 census counted 7,255 residents living on Molokaʻi. The *Socio-Economic Forecast Report* estimated that a 1% annual increase in resident population would add about 2,500 residents to the island by the year 2040, for a total population of around 9,800. Figure 2.1 depicts Molokaʻi's historic population growth and identifies significant economic events between 1896 and 2010. It also shows population projections out to 2040 based on three scenarios: 1) no growth, 2) a mid-range annual growth of ½%, and 3) a higher annual growth of 1%.

Figure 2.2 depicts the historical and forecasted average daily resident and visitor population from 1990 to 2035. In 1990, the ratio of tourists to residents was approximately 1 to 7. By 2010 the ratio dropped to approximately 1 visitor for every 12 residents; this ratio is forecasted to remain relatively unchanged through 2035.

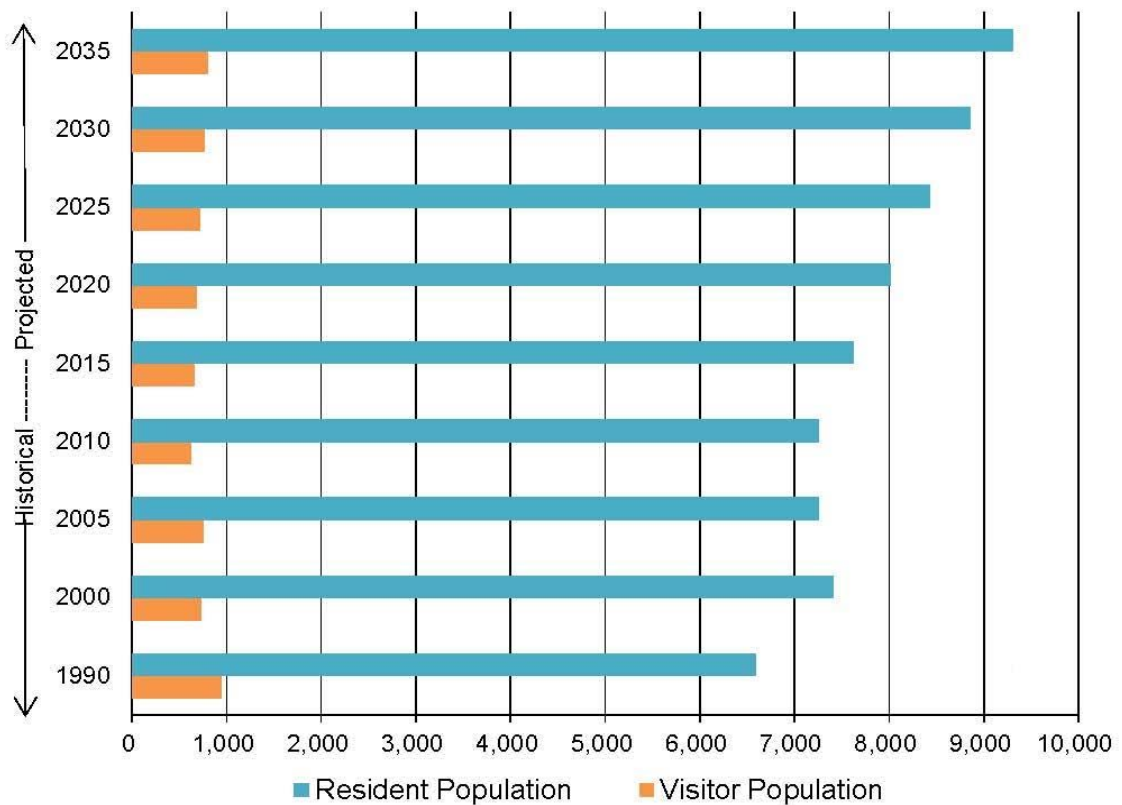
² County of Maui, Department of Planning. *Socio-Economic Forecast Report*. September 2014

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1 **Figure 2. 1 Historical and Forecasted Moloka'i Resident Population 1896-2040**



2
3 **Figure 2. 2 Historical and Forecasted Moloka'i Average Daily Resident & Visitor**
4 **Population 1990-2035**

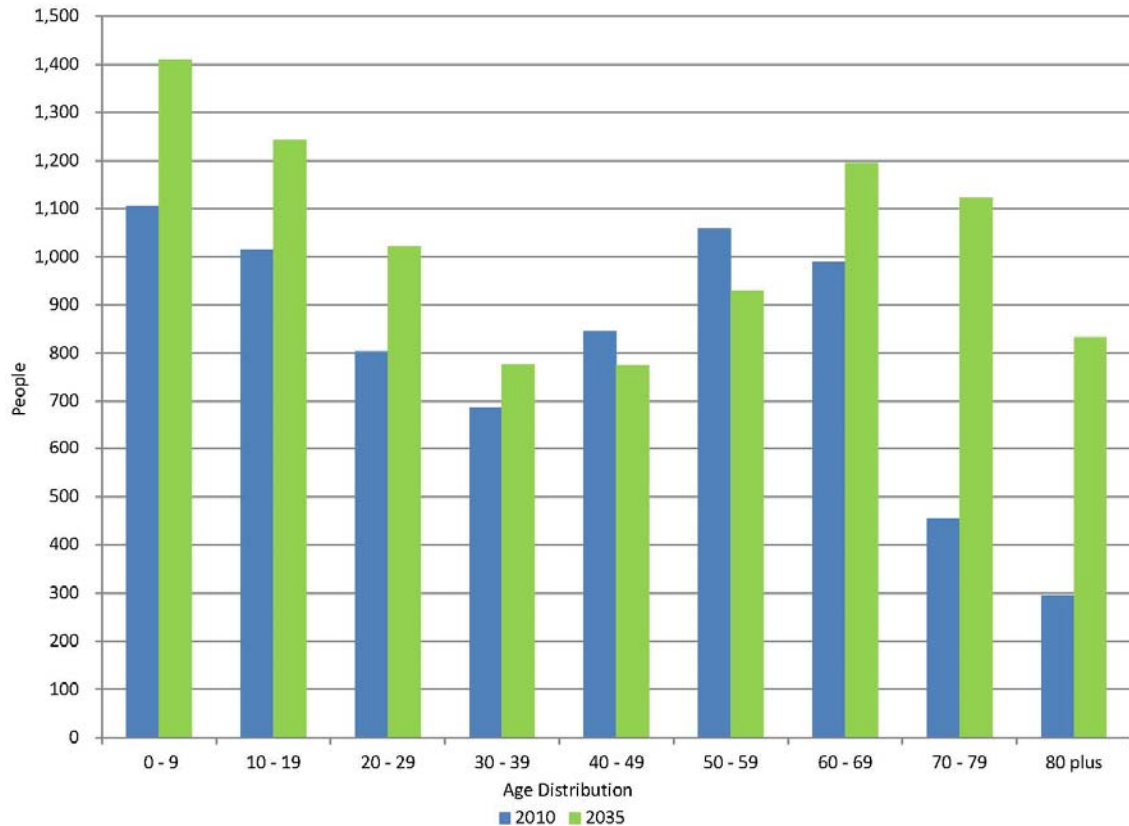


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Figure 2.3 portrays Molokaʻi's historical and forecasted age distribution from 2010 to 2035. It is clearly evident that the island's population is aging. The 70 plus age group is forecasted to grow from about 750 to nearly 2,000; an increase of over 160% between 2010 and 2035. This demographic change has significant impacts to public services as they relate to the elderly, including housing, transportation, health care, and eldercare services. In addition to the challenge of providing more senior services, the wage-earning population that typically supports children and seniors will be proportionally smaller.

Figure 2. 3 Historical and Forecasted Molokaʻi Age Distribution 2010 and 2035



The potential issues and opportunities presented by population growth will be addressed throughout the various chapters of the Community Plan.

2.3 SUSTAINABILITY AND CLIMATE CHANGE ADAPTATION

One intent of this community plan update is to help establish a sustainable and resilient future for Molokaʻi. This section provides an introduction and brief guide to how sustainability and climate change adaptation are woven into the fabric of the plan through a variety of policies and actions.

A. SUSTAINABILITY

Sustainability has become a fundamental concept within comprehensive and community planning over the past decade. It refers to the ability to meet present needs without compromising the ability of future generations to meet their needs. It requires a consideration of the long term environmental, social, cultural and economic costs of present day actions. Sustainability is a process rather than an end state. Communities function within a system where environmental, economic, and social systems are linked and balanced.

Sustainability is a particularly important concept in a region as fragile and remote as the Hawaiʻian Islands. In 2011, the Hawaiʻi State legislature established sustainability as a state priority by adopting priority guidelines and principles to promote *Sustainability* (HRS §226-108) into the Hawaiʻi State Planning Act. Updates to the County of Maui's General Plan will integrate the concept of sustainability and these guiding principles (see Appendix 2.1 Definition of Sustainability in Hawaiʻi and Appendix 2.2 Sustainability).

B. CLIMATE CHANGE ADAPTATION

In 2012, the Hawaiʻi State legislature adopted HRS §226-109 climate change adaptation priority guidelines (see Appendix 2.3 Climate Change Adaptation Priority Guidelines). The guidelines are intended to prepare the state for climate change impacts on the natural and built environment and on society. Both near-term implementation options and long-term strategies should be considered. Additionally, under the Hawaiʻi State Planning Act, priority guidelines shall take precedence when addressing areas of concern such as County decision making, allocation of resources, county general plans, development plans as well as capital improvement project appropriations and land use decision making.

Climate change will become increasingly serious before the middle of the 21st century, and will have profound impacts on not only Hawaiʻi's natural environment but also its communities and economy. Major climate change effects expected for Hawaiʻi include:

- warmer temperatures
- sea level rise with resultant flooding, beach erosion, and damage to coastal property
- sea surface temperature increase and ocean acidification with negative impacts to coastal and marine ecosystems
- increased frequency and severity of storms, and increased vulnerability to storm damage

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- increased drought with variable effects on aquifer recharge, stream flows, and freshwater resources

These outcomes will adversely affect areas of the economy including agriculture, tourism, fisheries, and trade; the built environment including infrastructure systems, housing, and recreation; historic and cultural resources; as well as ecosystems and natural resources³. Limitations in downscaling of climate models make long term predictions for local impacts very complex. However, current observations of trends such as declining rainfall, increased temperatures, and sea level rise can serve as indicators that may help inform communities as they begin to plan for climate change.

Climate change mitigation measures, such as lessening our dependence on fossil fuels to reduce emissions and changing the way we design and build communities, will need to be implemented to lessen the human impact on climate. Climate change adaptation requires strategies and actions to reduce the vulnerability of biological systems. By taking action now, it is possible to reduce potential damage in the future. Science based coastal and climate hazard information must be compiled, understood and appropriately applied to specific planning areas in Molokaʻi. Inventories must be developed and gaps in data identified to better understand how climate change will affect Molokaʻi and how to minimize those impacts.

C. WORKING TOGETHER TOWARD A SUSTAINABLE AND RESILIENT MOLOKAʻI

This is a pivotal moment in time for Molokaʻi to face the intertwined challenges of sustainability and climate change. In recognizing the links between society, the environment, and the economy, sustainability acknowledges the ecological limits of natural systems and affirms that humanity's well-being is fundamentally dependent on the health of our environment. Molokaʻi can become resilient and ready for change by strengthening its society, its natural and built environment, and by diversifying its economy. How these elements work together is described below.

Society - Molokaʻi's People and Culture: Caring for the people is a key component of ensuring an abundant sustainable and resilient Molokaʻi. This will involve providing educational opportunities for all ages and a full spectrum of social services. It will also be important to foster community participation in stewardship of the natural environment and historical and cultural resources to build collaboration between different levels of government, large landowners, non-profit groups, private businesses and the community. Molokaʻi's culture and sense of place will be honored by protecting historic and archaeological sites, cultural landscapes, and the natural and cultural resources upon which subsistence and traditional lifestyles depend.

Ensuring a resilient and abundant sustainable society will also require providing a variety of affordable housing types for all stages and ages of life. Also critical will be increasing food security through expanding production of locally grown food, supporting subsistence farming, hunting,

³ Climate Change Adaptation Priority Guidelines, Act 286

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1 fishing, and gathering, as well as introducing youth to agriculture through programs such as Future
2 Farmers of America and 4H.

3
4 **The Natural and Built Environment:** How the built environment is designed greatly influences
5 the protection and sustainability of the natural environment as well as the sustainability of a society
6 and culture. A well designed and engineered community is economically efficient when
7 characterized by a compact and pedestrian oriented mix of land uses, multi-modal transportation
8 networks and diversity of housing types. It should provide a strong sense of place and culture, and
9 preserve open space, agricultural land, and natural resources. ~~A well designed community is~~
10 ~~characterized by a compact and pedestrian oriented mix of land uses, multi-modal transportation~~
11 ~~networks, diversity of housing, strong sense of place and culture, and preservation of open space,~~
12 ~~agricultural land, and natural resources.~~ Moloka'i will build upon its historic small town development
13 patterns, integrate land use and transportation planning, and make development decisions
14 predictable, fair and cost-effective to create sustainable communities into the future.

15
16 Climate change adaptation strategies such as building on existing hazard mitigation principles and
17 developing new ways of designing communities and infrastructure will also be necessary for the
18 health and safety of the people and the environment. This will be achieved by actions such as
19 relocating critical structures out of hazard prone areas, incremental adaptation of harbors,
20 increasing water conservation and reuse, and managing aquifer recharge areas.

21
22 Natural resources and landscape features such as native forests, valleys, wetlands, springs, dunes,
23 and coral reefs will be protected and restoration should be encouraged; ~~restored, and~~ they should
24 be valued for the environmental services they provide and for their cultural importance. Negative
25 and adverse impacts of Feral ungulates and invasive species ~~will~~ shall be managed and principles
26 of native Hawai'iian land management, including ahupua'a, will be integrated to help guide resource
27 management. Green technology, sustainable building practices, and green infrastructure solutions
28 will also be used.

29
30 **The Economy:** Fostering a robust and diversified economy is the third component to working
31 toward an abundant-sustainable and resilient Moloka'i. This will require growing a culturally-
32 appropriate tourism industry, supporting agriculture, encouraging new industries and
33 entrepreneurs, expanding education and support services for small businesses, and providing
34 necessary infrastructure, land, and affordable sea and air transportation options. Lower energy
35 costs by efficiently managing energy and water costs through establishment of a strategic
36 integrated management approach to supplying energy and water more efficiently. The integrated
37 management approach is key to providing stronger economic opportunities and becoming more
38 sustainable ~~Lowering energy costs by reducing dependence on fossil fuels is also key to providing~~
39 ~~more economic opportunities and becoming more sustainable.~~ This can be achieved by increasing
40 the use of renewable energy sources and promoting the use of electric vehicles. Water resources
41 can be used in a sustainable manner by recycling wastewater for irrigation and reuse of household
42 graywater.

3 | NATURAL, HERITAGE, AND SCENIC RESOURCES

This chapter will discuss ecosystems and natural resources in section 3.1; heritage resources, including the interface of the natural environment with human built structures and activities in section 3.2. Section 3.3 addresses scenic resources that shape our experience of place every day. The elements discussed in this chapter are fundamental to sustaining the quality of life enjoyed by Molokaʻi residents and are essential for supporting the living cultural traditions of native Hawaiians. Subsequent chapters discuss impacts from multiple natural and human-created hazards, including climate change, land use, and community design that need to be considered in combination with the elements of this chapter.

3.1 NATURAL RESOURCES

Molokaʻi's pre-human diverse ecosystems were extensively altered by human settlement beginning with the arrival of the Polynesians, continuing through the plantation era and into present day. The most significant changes were the result of clearing of forest lands for agriculture and building sites, and the introduction of non-native flora and fauna. Many hoofed animals that were initially introduced as free-range, eventually became wild. These feral ungulates destroyed the forest understory and tree roots, setting off a chain of environmental damage that extended from upslope area to the nearshore ecosystem. Erosion created bare land where invasive plants become established, which resulted in native species loss, reduced water recharge of the aquifer, decreased bio-diversity, and a less resilient forest ecosystem. Excessive erosion also results in sedimentation of surface waters and coral reefs, and leads to progressive propagation of invasive plants, such as mangroves and gorilla ogo, which threatens coral reefs and coastal ecosystems along Molokaʻi's south shore.

The forest ecosystem greatly influences many elements of Molokaʻi's community: natural and heritage resources, recreation, agriculture, tourism, infrastructure, and economic viability. Recent studies have calculated financial values for services provided by forest ecosystems¹ (See Appendix 3.1).

A University of Hawaiʻi study examined the various services provided by Oʻahu's Koʻolau forests - including water recharge, water quality, climate control, biodiversity, and cultural, aesthetic, recreational, and commercial values. These services were calculated to have a net present value of between \$7.4 and \$14 billion. Approximately half of that amount is attributed to the forest's contribution

¹ State of Hawaiʻi (2011). *The Rain Follows the Forest*. Department of Land and Natural Resources.

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to ground and surface water quality and quantity. Other watersheds across the state were estimated to be comparable in value.²

Protection and restoration of Molokaʻi's forest ecosystems will help to ensure an abundant sustainable water supply; it will reduce erosion, surface water runoff, flooding, sedimentation that fills ancient coastal fishponds, that forms new coastal land, and siltation of reefs and ocean waters. Development may disrupts the natural processes of ecosystems, and may increase non-point pollutants in surface water runoff. Most development occurs in coastal areas; nonpoint source pollutants from homes, businesses, farming and industry in coastal areas can decrease water quality and reef health. Modern building techniques that integrate development into the landscape can reduce the impact on water quality, animal and plant habitats, and ecosystem connectivity. Green infrastructure uses natural systems, constructed soil, rock, or plant-based systems for surface and storm water management. In 2013, Maui County strengthened water quality regulations by requiring on-site retention of site runoff for new development.

A. EXISTING CONDITIONS

Molokaʻi's largest native forest ecosystem is located in the East Molokaʻi mountains that contain deep, mostly inaccessible valleys with high quality habitat for stream fauna, forest birds, native snails, and insects. Molokaʻi's other significant habitats are lava tube caves, montane bogs, wet forests and shrublands, cliff and coastal systems, and nine offshore islets. These natural ecosystems provide recovery, or critical habitat identified by the U.S. Fish and Wildlife Service (USFWS) for 79 endangered and 3 threatened terrestrial species and 11 endangered and 2 threatened marine species, including the Maui parrotbill, and ʻākohekohe (crested honeycreeper) and Blackburn's sphinx moth.³

Approximately 30% of Molokaʻi is in the State Conservation District, which is under the jurisdiction of the Department of Land and Natural Resources (DLNR). Most areas dominated by native species are in East Molokaʻi Mountains or along the coasts (see Map 3.1). Numerous federal, state, and county plans and regulations support actions to protect, conserve, or restore the natural resources of these areas. Partnerships between agencies, nonprofits, community groups and stakeholders have been formed, but there is a need to expand both partnerships and collaboration in order to more effectively address the complexity and scope of environmental issues.

² State of Hawaiʻi (2011). *The Rain Follows the Forest*. Department of Land and Natural Resources, Pg. 4.

³ U.S. Fish and Wildlife Service Endangered Species Database, May 2015;
<http://www.fws.gov/endangered/>

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1 *Hawaii's Comprehensive Wildlife Conservation Strategy* identified key management areas and
2 the parties responsible for managing them⁴. Although there has been extensive conservation
3 work accomplished to date, the State has identified additional threatened areas that need to be
4 protected such as cave ecosystems, coastal wetlands and shorelines, and stream corridors. Key
5 threats to these areas include feral ungulates, predators, invasive species and human intrusion.
6 Often in addressing one threat another threat can be reduced. For example, forest restoration is
7 being addressed by abatement of feral ungulates. Once feral ungulates cease to disturb the soil
8 the native forest can regenerate in small areas, which reduces the area for invasive plant species
9 to establish and reduces subsequent soil erosion, deposition in nearshore waters, and siltation of
10 coral reefs.

11
12 Hawaii state plans, such as the *Coastal Non-point Pollution Control Program*⁵, the
13 *Implementation Plan for Polluted Runoff Control*⁶; and the *Ocean Resource Management Plan*⁷
14 (ORMP), are addressing comprehensive ecosystem management by connecting upland land-
15 based activities to ocean resource conditions. Excessive sediment, and other non-point
16 pollutants such as nutrients, herbicides and heavy metals, are being addressed by multiple efforts
17 (see Map 3.2). Hawaii's Local Action Strategy has partner agencies addressing land-based
18 pollution threats to reefs in the Kawela watershed. Best Management Practices (BMPs) for
19 control of feral ungulates and wildfire are being extended into other areas and sediment retention
20 basins will be constructed and maintained along the south shore. The USDA Natural Resources
21 Conservation Service (NRCS) implements many soil conservation projects on Moloka'i using the
22 Farm Bill's Environmental Quality Incentives Program and other landowner assistance programs.

23
24 Restoration of wetlands and riparian areas can play a vital role in reducing polluted runoff by
25 intercepting surface runoff, subsurface flow, and certain groundwater flows. Moloka'i community
26 groups, nonprofits, and schools are actively restoring lo'i kalo (taro patches) and 'auwai (irrigation
27 ditches) that reduce and filter sediment loads. At Kawaikapu Preserve, the Moloka'i Land Trust
28 plans to use the ahupua'a based management system to restore lands including ancient taro
29 fields. In Halawa Valley, restoration of taro fields which once measured in the hundreds of acres
30 is ongoing.

31
32 The ORMP emphasizes links between human activities and the environment and the need for
33 increased stewardship⁸, which usually begins with awareness of a connection between one's
34 activities and an environmental issue. A survey of Hawaii residents about coral reef management
35 priorities found a high level of public awareness of the decline of reef health but little knowledge
36 of how their personal land-based behaviors contribute to that decline or how to doing damaging

⁴ *Hawaii's Comprehensive Wildlife Conservation Strategy*. (2005) Department of Land and Natural Resources. Honolulu, Hawai'i

⁵ State of Hawaii (1996). *Coastal Nonpoint Pollution Control Program*, 2010 Update

⁶ State of Hawaii (2000). *Implementation Plan for Polluted Runoff Control*.

⁷ State of Hawaii (2013). *Ocean Resources Management Plan*.

⁸ Ibid

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1 activities differently ~~can~~[can](#) help the reefs⁹. Public environmental education and involvement
2 activities are available on the island of Molokaʻi contribute to building a volunteer base for on-
3 going stewardship. Some non-profits use volunteer monitoring, based on BMPs, to build
4 stewardship. Involvement in volunteer monitoring and citizen science not only raises awareness
5 and creates stakeholders, but also increases science literacy within the community.

6
7 The Hawaiian Islands Humpback Whale National Marine Sanctuary includes ocean waters
8 adjacent to Molokaʻi's southern, western, and eastern shorelines. The Sanctuary also
9 encompasses the ocean channels between Molokaʻi, and Lānaʻi, and Maui, as well as an
10 extensive ocean area off Molokaʻi's west shore (see Map 3.1). Created by Congress in 1992, the
11 Sanctuary protects humpback whales and their habitat; it constitutes one of the world's most
12 important humpback whale habitats. The National Oceanic and Atmospheric Administration
13 (NOAA) and DLNR jointly manage the Sanctuary.

14
15 Water runoff with excessive sediment and pollutants, recreational over-use, and commercial over-
16 fishing are primary threats to the health of reefs and fisheries. DLNR's Division of Aquatic
17 Resources (DAR) manages four areas to protect ocean fishery resources near Molokaʻi. The
18 Kaunakakai Harbor Fishery Management Area restricts the fishing season, harvest methods, and
19 fishing areas. Bottomfish Restricted Fishing Areas (BRFA) are located in two open ocean areas
20 between the southeast end of Molokaʻi and Maui, and far offshore from the southwest point. A
21 third BRFA is located along the shoreline off the northeast side of Kalaupapa National Historic
22 Park, extending eastward in the nearshore waters along Molokaʻi's north shore. The BRFAs are
23 co-managed by DLNR and National Marine Fishery Service (NMFS), a division of NOAA.

24
25 The Mokio Preserve, is a 1,718 acre parcel located in northwest Molokaʻi that is owned and
26 managed by the Molokai Land Trust (MLT), with five miles of coastline, dune, and wetland
27 ecosystems. East of Mokio is the Moʻomomi Preserve, 921 acres of the most intact coastal
28 beach strand and sand dune area in the main Hawaiian Islands. It is owned, [or managed](#) by the
29 Nature Conservancy with MLT assisting with stewardship activities.

30

⁹ NOAA (2010). *Hawaii Coastal Zone Management Program, Final Evaluation of Findings*. Office of Ocean and Coastal Resource Management.

Climate Change and Natural Resources

The observed effects of climate change on natural resources will continue to challenge the health of ecosystems with increased frequency and severity of climate-related disturbances such as storms, flooding, drought, wildfire, invasive species, and ocean acidification, combined with ~~an~~ increased effects from human land and natural resource use.

Marine ecosystems, coral reefs and nearshore habitats are experiencing increasing sea surface temperatures leading to thermal stress and coral bleaching. SLR and coastal inundation will change the nearshore environment, including habitat loss and shifts. This will be amplified by accelerated SLR and changes in storm and cyclone patterns, which will increase wave energy and erosion patterns.

Terrestrial ecosystems are experiencing warming air temperatures which may cause ecosystems to shift upslope or decline in size. Higher elevations may experience an even greater degree of change. Variations in precipitation patterns could affect terrestrial ecosystems through increases in flooding, erosion, drought, and fire. As the extent of native habitats diminishes, the range for pests, diseases, and invasive species may expand.

B. ISSUES

- Issue 1: Ecosystems are declining due to an increase in invasive animal and plant species, soil erosion, ~~and~~ coastal deposition and human effects.
- Issue 2: Excessive sediment from erosion and coastal deposition severely impact coastal water quality and the health of all marine life.
- Issue 3: Cumulative impacts to surface and coastal waters from pollutants including sediment, home and business chemicals, herbicides, and fertilizers are not well understood by the community.
- Issue 4: Climate change will stress and change ecosystems with some ecosystems declining and some adapting successfully.
- Issue 5: The coral reefs and loko i`a (fishponds) ~~other~~ ecosystems along Moloka`i's south shore are being threatened by the progressive propagation of invasive plant species such as mangroves and gorilla ogo that retain sediment, causing poor water quality.

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C. GOAL, POLICIES, ACTIONS

Goal Preserve, protect, and manage Molokaʻi's exceptional natural land and water resources to ensure that future generations may continue to enjoy and protect the island environment.

~~Molokaʻi's environment and natural resources will be protected, restored, and preserved for current and future generations to use and enjoy.~~

Policies

1. Ensure collaboration and partnerships for natural resource management, watershed planning, funding, and action implementation.
2. Encourage the implementation of State plans and programs for comprehensive ecosystem management.
3. Encourage protection and restoration of the biodiversity of native plant and animal terrestrial and marine species and habitats through land conservation, resource management, education, invasive species prevention and control, wild fire prevention, and stewardship.
- ~~3.4.~~ Require all grading and grubbing permits on Molokaʻi to be reviewed by the local SWCD or the Molokai-Lanai Soil and Water Conservation District (MLSWCD) and DLNR State Historic Preservation Division as referenced in MCC Title 20, Chapter 20.08.080. Moved from 3.2
- ~~4.5.~~ Ensure that the design and construction of new development protects surface, groundwater, and coastal water quality from nonpoint ~~source~~ and ~~non-point~~ source pollution.
- ~~5.6.~~ Encourage *low impact development* education programs, including green infrastructure, for designers, developers, and builders.
- ~~6.7.~~ Support a significant increase in public outreach, education, and involvement events to build community-based stewardship and implementation capacity.
- ~~7.8.~~ Recognize and support sustainable agricultural, forestry, and game BMPs as key elements to maintain, preserve, and protect Molokaʻi's land, water and marine resources.
- ~~8.9.~~ Encourage and support the establishment and expansion of native plant species by utilizing appropriate practices and techniques for propagation and planting.

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~~9~~.10. Encourage the implementation and adequate funding for the Hawaii Department of Agriculture's Plant Quarantine Program on Moloka'i.

~~10~~.11. Encourage food security through programs and activities in ~~organic~~ agriculture, permaculture, agroforestry, and aquaponics.

Actions

Table 3.1 Natural Resources			
No.	Action	Lead County Agency	Partners
3.1.01	Assist with a conference or workshops of key federal, state, and local agencies, and community and non-profit leaders to discuss, plan, and prioritize actions to address environmental and natural resource issues.	OED	Planning Department Department of Water Supply MLSWCD
3.1.02	Compile GIS data to map the highest value ecological areas and natural resources.	Planning Department	DLNR Major landowners NGOs The Nature Conservancy(TNC) Molokai Ranch East Moloka'i Watershed Partnership MLSWCD
3.1.03	Compile GIS data to map primary and secondary groundwater recharge areas to help prioritize protection and restoration efforts.	Water Department	State (CWRM) Planning Department USGS
3.1.04	Assist in conducting workshops with stakeholder groups to develop an integrated natural and heritage resources management system.	OED	DLNR - Na Ala Hele Trail and Access Program NGOs
3.1.05	Assist in conducting, or coordinating public education and involvement events to build community-based stewardship and implementation capacity.	OED	DLNR Major landowners NGOs Molokai Ranch Watershed Partnerships TNC MLSWCD
3.1.06	Assist in the development of a West Moloka'i dry native forest and lowland shrub restoration program.	OED	DLNR Major landowners NGOs Molokai Ranch TNC MLSWCD

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Table 3.1 Natural Resources			
No.	Action	Lead County Agency	Partners
3.1.07	Consult with UHMC-Moloka'i to develop and manage a native plant nursery for community restoration projects.	OED	UHMC-Moloka'i DLNR MLSWCD
3.1.08	Conduct outreach to agricultural, ranching, and development interests to implement BMPs to reduce excess sediment loss, and herbicide and pesticide use.	OED	DOH Clean Water Branch CTAHR NRCS MLSWCD
3.1.09	Review regulations for small-scale water retention projects. Reduce sediment and nutrient loads from entering surface and coastal waters by Assisting landowner(s), upon request, to design or construct small-scale water retention, projects bioretention, or other conservation projects to increase infiltration to the aquifer and control surface water run-off. Review regulations and revise, if needed, to support projects. Include bioretention methods to reduce sediment and nutrient loads from entering coastal waters.	DPW	DLNR NGOs Natural Resource Conservation Service (NRCS) USGS MLSWCD
3.1.10	Work with federal, state, and county agencies to initiate a program to provide education and support for community stewardship of the coastal areas, including conducting baseline studies on coastal water quality.	OED	DLNR DOH, Clean Water Branch NGOs NRCS USGS NOAA MLSWCD
3.1.11	Develop a toolbox of green infrastructure BMPs and conduct workshops for consultants, designers, developers, and builders.	DPW	State Office of Planning - Greenway Program
3.1.12	Develop a toolbox of BMPs for use by residents and businesses to improve ecosystem health and water quality in urban and coastal areas. Provide assistance or workshops on BMPs and education to change business and household practices. Maintain a website for public education on water quality pollution prevention and BMPs.	DWS	DOH-Clean Water Branch DPW Planning Department DLNR MLSWCD
3.1.13	Assist with development of a community-based game management plan.	OED	DLNR NRCS TNG EMWP Molokai Ranch Major landowners NGOs MLSWCD
3.1.14	Continue to support organizations that eradicate invasive species.	DWS	OED
3.1.15	Encourage the State to establish a decontamination site on Moloka'i.	OED	

3.2 HERITAGE RESOURCES

Throughout Molokaʻi's landscape there is an abundance of archaeological and historic sites and traditional cultural properties that document habitation by ancient Hawaiians, as well as, the more recent immigrants and their settlements. Archaeological, historic, and cultural resources combine to express the heritage of the people and place. ~~Some~~ Many residents practice a subsistence lifestyle, relying upon the island's resources for fishing, hunting, and gathering. The people of Molokaʻi are proud of their history, cultural identity, and unique Molokaʻian lifestyle, and are determined to uphold and strengthen these qualities for future generations.

Molokaʻi is historically significant as a center of Hawaiian culture and learning. It is purported in oral tradition to be the birthplace of the hula and a training ground for powerful priests. Hawaiians have traditionally believed the *ʻāina* (land) is their ancestor and that it is their *kuleana* (responsibility) to search for balance and harmony with nature: the people will take care of the land, and in turn the land will take care of the people. The island's natural resources are intimately connected to the cultural resources and together they provide the foundation for the traditional Hawaiian lifestyle. By the mid-1800s, Europeans and Americans were established on Molokaʻi. As these populations increased, the plantation and ranching industries took hold on the island, producing commercial ventures operating in throughout the 1800s and 1900s. Several small-scale attempts at sugarcane cultivation were made between 1870 and 1900, however sugar plantations on Molokaʻi did not reach the same level of success as those on neighboring islands.

Beginning in the 1920s, growth in cattle ranching and pineapple plantations influenced growth development on Molokaʻi. Kaunakakai became the shipping and political center of the island as well as the home of Molokai Ranch's headquarters. In 1923, Libby, McNeill & Libby established a pineapple plantation in Maunaloa. Kualapuʻu, originally the location of a small out-station for Molokai Ranch, became home to the California Packing Corporation pineapple plantation in 1927.

A. EXISTING CONDITIONS

Molokaʻi has hundreds of documented archaeological and historic sites as well as numerous undocumented sites. West and central Molokaʻi lands have been extensively surveyed, while the east end has not yet been adequately surveyed. [Appendix 3.2 provides a reference list of archaeological surveys conducted on Molokaʻi, including *Molokai: A Site Survey*, April 1971 by Catherine C. Summers.](#) Approximately 120 Molokaʻi sites are listed in the State Historic Preservation Division's (SHPD) statewide Inventory of Historic Properties, and roughly 75 of those sites have been entered in the Hawaiʻi and/or National Registers of Historic Places ~~(see Map 3-3).~~ [Sites depicted on Map 3.3 include sites listed in SHPD's inventory as of 2009, excluding restricted sites. The map does not represent an exhaustive catalogue of Molokaʻi cultural sites.](#)

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1
2 Archaeological sites and traditional cultural properties are distributed across the landscape and
3 include both Hawaiian cultural sites as well as areas of more recent use. A *traditional cultural*
4 *property* is defined as an area or place “that is eligible for inclusion in the National Register
5 because of its association with cultural practice or beliefs of a living community”.¹⁰ Some of
6 Molokaʻi’s most noted traditional cultural resources include the ancient Hawaiian complexes of
7 Halawa Valley, the *ʻIliʻiliʻōpai heiau* of Mapulehu, the east end fishponds, the *Makahiki* Grounds of
8 Nāʻiwa, the *Hula Piko* of Kāʻana, St. Joseph Church, and the R.W. Meyer Sugar Mill of Kalaʻe.
9 [Appendix 3.3 provides a list of cultural sites that the community desires to protect.](#)

10
11 Some Molokaʻi residents feel that there is a lack of awareness and respect for the importance of
12 Molokaʻi’s cultural and archeological sites by locals and visitors alike, which often leads to
13 intentional or unintentional damage.¹¹ There is also concern that some sites that have not been
14 formally identified are being damaged or destroyed by unregulated ground altering activities, land
15 development, and all-terrain vehicle use. In addition, neglected archeological sites such as *heiau*,
16 [fishponds](#), rock walls, and house platforms, are often damaged by [negative human activity](#),
17 animals, or tree roots.

18
19 Many of the historic buildings in Kaunakakai remain along the town’s main commercial corridor,
20 Ala Malama. However, a number of the wood, plantation vernacular style storefronts have been
21 altered and character defining features removed. Maunaloa has suffered from wholesale
22 demolition of laborer housing. Some twenty years after pineapple operations ceased in the
23 1970s, approximately 57 of the 200 plantation homes were demolished, and few wood plantation
24 vernacular commercial buildings remain intact. Conversely, the original camp homes at
25 Kualapuʻu remain largely intact. A number have been altered, but the majority of the homes
26 retain the character defining features of early twentieth century Hawaiian plantation laborer
27 housing.

28
29 Molokaʻi’s cultural sites are actively used by many in the community for cultural, spiritual, and
30 subsistence purposes and are important to the perpetuation of Hawaiian traditions and cultural
31 practices. According to the *Governor’s Molokaʻi Subsistence Task Force Final Report*¹², among
32 the random sample group surveyed 28% of their food is acquired through subsistence activities
33 and 76% of respondents ranked subsistence as important to their own families. Erosion and reef
34 siltation, over-fishing and improper harvesting, and non-native invasive marine species threaten
35 traditional subsistence practices. Molokaʻi has a wealth of traditional cultural practitioners with
36 extensive experiential knowledge of local customs, resources, and ecosystems. Many of these
37 practitioners believe it is their responsibility to teach younger generations traditional conservation
38 practices and adherence to a code of conduct. This community place-based traditional resource

¹⁰ U.S. Department of the Interior, National Park Service. (1998). *National Register Bulletin 38*.

¹¹ Chris Hart & Partners, Inc. January 2011. *Cultural Resources Issue Paper*. Prepared for the County of Maui Long-Range Planning Division, Wailuku, HI.

¹² Matsuoka, Jon K., Davianna P. McGregor, and Luciano Minerbi. June 1994. *Governor’s Subsistence Task Force Final Report*. Prepared for the State of Hawaii, Department of Business, Economic Development and Tourism, Honolulu, HI.

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management can function collaboratively with the more contemporary, resource management approach. One example is the 'Aha Moku initiative, a joint venture established between the native Hawaiian community and the State to integrate the traditional cultural natural resource management system into existing government regulatory policy.

B. ISSUES

Issue 1: Cultural, historic, and archaeological sites are vulnerable to destruction, theft, neglect, and environmental degradation.

Issue 2: Cultural and environmental degradation affects the ability of ~~contemporary~~ Hawaiian cultural practitioners to practice their traditional lifestyles, including subsistence practices.

C: GOAL, POLICIES, ACTIONS

GOAL Moloka'i's cultural, historic, and archaeological sites, and cultural practices will be protected and perpetuated for their cultural and historical value, and for enjoyment of and sustainable use by future generations.

Policies

1. Encourage proper management of and appropriate interpretation of significant cultural resources and sites.

2. Promote the rehabilitation, reuse, and historic registration of significant cultural resources, historic structures, and cultural landscapes.

~~3. Require all grading and grubbing permits on Moloka'i to be reviewed by the Moloka'i Lāna'i Soil and Water Conservation District as required in Title 20, Chapter 20.08.080 MCC. County personnel located on Moloka'i.~~ **moved to 3.1**

~~4.~~^{3.} Where appropriate, require identification and mitigation of potential impacts to subsistence activities and resources when reviewing development permits and discretionary land use proposals.

~~5.~~^{4.} Support access for subsistence hunting, fishing, and gathering.

~~6.~~^{5.} ~~Support protection of~~ Adhere to Native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in

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accordance with the Hawai'i State Constitution (Article XII, Section 7) and Hawai'i law.

~~7.6.~~ Support the establishment of the island as a community-based subsistence fishing area pursuant to HRS 188-22.6.

~~8.7.~~ Increase community awareness and stewardship of Moloka'i's historic and cultural resources.

~~9.8.~~ Protect traditional cultural landscapes such as Hālawā Valley, [Hoku Kano-Ualapu'e Complex](#), Ka'amola, and Kamalo.

~~10.9.~~ Encourage the restoration, management, and use of Moloka'i's fishponds.

~~11.10.~~ Support the inclusion of educational programs that emphasize culturally significant arts and practices, the Hawaiian language, and Moloka'i history into the curriculum of Moloka'i schools.

~~12.11.~~ Support community-based cultural tourism.

[12.](#) Encourage increased funding for [the State Historic Preservation Division](#).

[13.](#) [Support Moloka'i cultural events that do not have an adverse effect on natural resources.](#)

Actions

Table 3.2 Heritage Resources			
No.	Action	Lead County Agency	Partners
3.2.01	Create-Complete and regularly maintain a GIS inventory of cultural, archaeological and historic resources and trails assembled from existing inventories and databases to be used for project review.	Planning Department	SHPD
3.2.02	Identify other significant cultural property types, including rural historic landscapes and traditional cultural properties and take action to include appropriate sites on the National Register .	Planning Department	SHPD
3.2.03	Establish archaeological and historic districts where high concentrations of sites exist.	Planning Department	SHPD

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3.2.04	Provide education and incentives to encourage property owners to nominate structures and sites to the State and National Register of Historic Places.	Planning Department	Real Property Tax
3.2.05	Coordinate with cultural practitioners and state agencies to develop public education programs on the proper gathering and use of subsistence resources.	Environmental Coordinator	Cultural Practitioners DLNR OHA
3.2.06	Develop educational materials addressing heritage and natural resources impacts from unpermitted ground altering activities; provide instructions for reporting unpermitted activities. Train Moloka'i Development Services Administration (DSA) personnel to immediately respond to complaints.	DPW	Planning Department
3.2.067	Establish a historical interpretive center at Mālama Cultural Park.	Parks Department	Planning Department SHPD DHHL
3.2.078	Explore establishment of Kawakiu Nui and Pu'u-o-Kaiaka as cultural preserves and development of preservation/interpretive plans for these areas. Explore options to protect cultural sites listed in Appendix 3.3.	Planning Department	SHPD Molokai Ranch Landowners
3.2.9	Conduct community curatorship, site reconstruction, and interpretation projects at Kaulukukui-o-Lanikaula.	Planning Department	SHPD Pu'u-o-Hoku Ranch
3.2.08940	Establish a comprehensive historical interpretive program including historical markers, maps and brochures identifying ahupua'a and significant historical sites that are appropriate for public interpretation.	OED	Community Groups Moloka'i Visitors Association Planning Department SHPD
3.2.11	Reestablish the Smith and Bronte memorial site at Kaamola.	Planning Department	SHPD Landowner?
3.2.4092	Coordinate with kupuna knowledgeable in north shore protocol to hold community meetings to educate people about the history and cultural significance of Wailau and Pelekunu and to encourage pono cultural practices while on the north shore.	Environmental Coordinator	OED Cultural Practitioners DLNR OHA
3.2.1043	Encourage the Governor to appoint members to the Moloka'i Burial Council so that regular hearings by this body may resume.	Planning Department	SHPD
3.2.11	Promote Moloka'i cultural events that do not have an adverse effect on natural resources.	OED	USCG DoCARE

3.3 SCENIC RESOURCES

Scenic views and corridors are abundant and diverse on Molokaʻi. They include land, sky, sea, and historic structures at a variety of scales and locations: urban, rural, agricultural, and open spaces. Views of nature, including ocean, hill slopes, valleys, ridgelines, [springs](#), [waterfalls](#), [and](#) ~~er~~ coastlines can be seen nearly continuously from roadways that cross the island or follow the coast.

Existing Conditions

Scenic resources on Molokaʻi benefit from the limited amount of development which preserves vast areas of open space, agricultural lands, forested mountains, historic landscapes and ocean coastline. Many ridgelines and higher elevation hillsides remain undeveloped, while [vegetation](#) ~~mangroves~~ along the coastline obstruct views in [many](#) ~~some~~ locations.

A photo inventory of Molokaʻi's scenic resources was conducted and mapped but has not been rated for resource value. The *Maui County General Plan 2030 Scenic & Historic Resources, Inventory & Mapping Methodology Reports* provide guidance on visual quality ratings based on eleven factors that are used to evaluate and prioritize scenic resources.¹³ In addition, the inventory and mapping work has not yet occurred to develop the Scenic Roadway Corridors Management Plan and Design Guidelines.

B. ISSUES

Issue 1: Scenic resources are vulnerable to loss or degradation when not identified.

Issue 2: Most scenic resources can be difficult to restore once changed.

Issue 3: Molokaʻi's scenic views are underutilized due to a lack of signage and turnouts.

[Issue 4: The increasing spread of invasive and poorly maintained vegetation is blocking views to the ocean.](#)

¹³ Chris Hart & Partners, Inc. (June 2006). *Maui County General Plan 2030 Scenic & Historic Resources, Inventory & Mapping Methodology Reports* (County of Maui Long-Range Planning Division).

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C. GOAL, POLICIES, AND ACTIONS

Goal: Preserve and protect Moloka'i's diverse scenic resources for future generations.

Policies:

1. Restrict or mitigate the impact of development on scenic resources.
2. Ensure development is designed to protect scenic roadway views, significant views of ridgelines and hill-slopes to maintain open space scenic character.
3. Increase community awareness and appreciation of Moloka'i's scenic resources.
4. Purchase Support land purchase, or provide tax incentives, to design and construct scenic overlooks, roadside pull-outs, and signage. Maintain scenic view corridors to the ocean.

Actions:

Table 3.3 Scenic Resources			
No.	Action	Lead County Agency	Partners
3.3.01	Develop BMPs for <u>land and</u> development <u>uses</u> to protect identified priority view corridors or viewsheds.	Planning Department	NGOs
3..3.02	Complete the visual inventory, analysis, and mapping of key scenic view corridors, ridgelines, and viewsheds.	Planning Department	NGOs
3..3.03	Develop <u>and implement</u> Scenic Roadway Corridors Management Plan and Design Guidelines.	Planning Department	NGOs
3.3.04	Provide educational workshops for design consultants and developers on scenic resource BMPs.	Planning Department	NGOs
3.3.05	Integrate scenic resource planning into natural and heritage resources strategies and plans.	Planning Department	NGOs

4 | HAZARDS

Hazards from natural forces have been measured in Hawai'i since the early 1800s. Since 1955 there have been 24 major disaster declarations in the State of Hawaii due to tropical cyclones, earthquakes, landslides, lava flows and tsunamis. [Natural disasters have inflicted significant property losses and resulted in death and injury to residents and visitors in the County of Maui.](#)

Natural disasters have inflicted significant property losses and resulted in death and injury to residents and visitors in the County of Maui. Both direct and indirect costs should be considered in calculating the total loss from natural disasters, since recovery efforts divert available public and private resources, adversely impacting economic productivity.

The main focus of disaster recovery is how to build resiliency, the bounce-back capabilities, into communities. People must first recognize the inherent risks involved in their choices of where and how to live. Then the communities can adopt "approaches that eliminate, reduce, mitigate or transfer those risks in ways that make them more manageable over the long haul"¹.

Communities with strong disaster resilience capabilities were often those that were already doing well at the things citizens and businesses most value – having leaders that people trust and institutions that work, having a healthy environment, having a regularly maintained infrastructure designed to anticipate stresses, and having a flexible economy that provides opportunities for broad cross-sections of workers and investors.²

The islands that constitute Maui County are exposed to hazards that are sometimes unique to each island. Moloka'i has greater exposure to high surf from the large Northwestern Pacific swells than other islands. Wildfires and drought have significantly impacted Moloka'i. Floods and coastal erosion with economic, social, and environmental significance are more common on Moloka'i because its population center is near shorelines and steep graded mountains. All islands in the County have similar exposure to tropical cyclones because of their geographic location. Similarly, all islands in the County have comparable exposures to earthquakes.

The hazard mitigation planning process analyzes a community's risk from natural hazards, coordinates available resources, and implements actions to reduce risks. Natural hazards must be considered when planning for future growth and development of a community. The Maui County Hazard Mitigation Plan (HMP) provides a strategy to reduce or eliminate loss of property or life caused by natural hazard events. The HMP addresses the relationship among various types of hazards, identifies actions that benefit multiple hazards, and prioritizes resources to areas susceptible to most severe or most frequent hazards.

¹ <http://www.soest.hawaii.edu/coasts/sealevel/>

² Brown, Ben. (December 2010) *What is Resilience? A Roadmap to Resilience: Towards a Healthier Environment, Society and Economy for South Alabama. A Report by the Coastal Commission of Alabama.*

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1 The 2010 HMP is being updated and will include information on hazard events that have impacted
2 the County since the 2010 Plan was published, as well as more information on the potential impacts
3 of climate change and sea level rise (SLR). The updated HMP will also focus on mitigating the
4 impacts of flooding in order to improve the County's Community Rating System (CRS) class ranking,
5 which is currently - 8. This rating provides a 10% annual discount off flood policy premiums. A ranking
6 of 1 out of the 10 classes is the highest and would provide a 45% discount. [The NFIP is a Federal](#)
7 [program created by Congress to mitigate future flood losses through sound, community-enforced](#)
8 [building and zoning ordinances and to provide access to affordable, federally backed flood](#)
9 [insurance protection for property owners. The NFIP is designed to provide an insurance alternative](#)
10 [to disaster assistance to meet the escalating costs of repairing damage to buildings and their](#)
11 [contents caused by floods.](#) The County is in the process of updating the Flood Insurance Rate
12 Maps (FIRMs) that are used to determine which property owners will be mandated by FEMA to
13 purchase flood insurance and the cost of the insurance.

Climate Change and Hazards

Scientists agree that climate change is warming the earth based on an extensive body of scientific study, although the range and rate of climate change is still being -determined. Some changes in Hawaii and other Pacific Islands are already measurable including SLR, increasing ocean acidity, increasing water and land temperatures, and changing rainfall patterns. Early measurements have also revealed decreasing base flows in streams, changing wind and wave patterns, and changing plant and animal habitats and species distribution. Research currently indicates that global mean sea level may reach approximately 1 foot by mid-century and 2.5 to 6.2 feet by the end of the century; however, there are significant unknowns in predicting SLR (<http://www.soest.hawaii.edu/coasts/sealevel/> 6/29/2015).

The 2014 Hawaii *Climate Adaptation Initiative Act* (Act 83) established an interagency climate adaptation committee tasked with developing a SLR vulnerability and adaptation report that addresses potential statewide climate change impacts out to 2050. The interagency committee of county and community representatives will be overseen by the Department of Land and Natural Resources (DLNR) and the Hawaii State Office of Planning. The committee will make recommendations about the best ways to prepare for SLR and the secondary effects. The committee is required to issue a report that will be available to the public before the end of 2017. Act 83 also authorizes the Office of Planning to coordinate development of climate adaptation plans and policy recommendations and to use the committee's report as framework for addressing other climate threats and climate change adaptation priorities.

The predicted impacts from SLR include increased coastal erosion, coastal bluff/cliff failure, groundwater table elevation, storm surge and inundation of low-lying areas. This will increase the likelihood of property damage and community exposures to hazards, such as high drought conditions and associated higher risk for wildfires. The impacts of SLR can increase saltwater intrusion in parts of the aquifer and cause the groundwater table to rise resulting in inundation of low-lying areas and the infrastructure within (Rotzoll & Fletcher 2013). SLR will accelerate in the future altering the frequency and severity of wave inundation, erosion and flooding events. Man-made structures and residents close to the shoreline pose particular challenges for hazard planning and adaptation to SLR.

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A. EXISTING CONDITIONS

Extensive areas of Kaunakakai and the east-end communities are located at low coastal elevations placing them at relatively high-risk from tsunami, coastal flooding, stream flooding, storm surge and inundation. Areas around the tourist resort at Kaluako`i and the entire campground at Papohaku Park are also in tsunami inundation zones ([see Hazards maps 4.1, 4.2 and 4.3](#)).

Moloka`i has nine potential shelters for hazard evacuations with a total capacity of 5,391 people. Molokai High and Kualapu`u Elementary are rated as hurricane shelters with a combined capacity of 3,197 people. While this capacity could accommodate over 40% of the population, studies indicate that only 35% of residents are likely seek public shelter during a hurricane.³ Three shelters are rated for tsunamis and three for tropical cyclones. Only one shelter has been Red Cross approved. A State of Hawaii Civil Defense facility survey found recurring deficiencies with existing shelters (Martin & Chook, 2010)⁴.

There are 11 warning sirens on island: eight on the south shore, one on the Kalaupapa Peninsula, one in Maunaloa and one on the west end. An additional six sirens are planned for Moloka`i as part of the Statewide Modernization and Upgrade Plan. Sirens have an effective average range of one-half mile. The Civil Air Patrol provides coastal warnings and the County of Maui Civil Defense Agency transmits warnings to the public through the Emergency Alert System (EAS), which includes simultaneous broadcasts over all radio and television systems. Text and emails are sent to Civil Defense Notifications and Emergency Alert subscribers. Disaster response is coordinated through the County's Emergency Operation Center on Maui and the Moloka`i Incident Command Post. Communications are augmented through satellite transmission.

Flooding and Erosion – Annual storms can bring multiple hazards that impact coastal and inland areas. These impacts include flash floods, high waves, storm surge, high winds and hurricanes. SLR increases the effect of high waves and storm surge that contribute to beach and shoreline erosion and coastal inundation. Major flood problems are associated with the heavy flow of four water courses in east Moloka`i. Wailua Stream, Wawaia Gulch, Kamalo Gulch and Kawela Gulch become blocked due to inadequate bridge openings or deposits of eroded sediment. Many streams run freely onto the roads as a result of inadequate drainage and stormwater infrastructure. This typically occurs around the east side of Kawela and at One Ali'i Beach Park. Roadway flooding can hamper travel and access. When streams and rivers flood on the mauka side of the road, heavy debris often settles on the roadways. Additionally, mud runs off onto roadways making roads impassable and creating hazardous driving conditions. There are several unnamed waterways that flood areas by the Kaunakakai Fire Station and Maui College impacting the cemetery and Kapaakea Homestead. Rising sea levels will also block the drainage of streams causing overflow at the stream mouth.

Detailed information and data on flooding and erosion is contained in the 2015 Maui County Hazard Mitigation Plan, Chapter 10 and Chapter 13.

³ Source: County of Maui, Department of Civil Defense

⁴ Martin & Chock. (2010) *Maui County Multi-Hazard Mitigation Plan*.

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Tsunami - Up to May of 2010, 27 tsunamis with run-up heights greater than 3.3 feet (1 meter) have made landfall in the Hawaiian Islands during recorded history and eight have had significant damaging effects on Maui, Moloka'i or Lanai. Tsunamis in the Hawaiian archipelago have commutatively killed the largest number of people of all natural hazards affecting the islands. Tsunamis reaching Moloka'i have exhibited tremendous variability in terms of run-up heights, inundation distances, and the damage they have inflicted. The April 1946 tsunami on Moloka'i, produced run-up heights of 7 and 44 feet on the east and west sides of Kalaupapa Peninsula, respectively.

New GIS maps for all islands in the County has been developed for tsunami inundation areas. These maps include delineations of historical and modeled run-up data; they are used for determining building standards and tsunami evacuation areas. Historically in Hawaii, the National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRMs) included the historical tsunami inundation limits. The new Digital Flood Insurance Rate Maps (DFIRMs) should be amended to include for these limits.

Detailed information and data on tsunamis is contained in the 2015 Maui County Hazard Mitigation Plan, Chapter 9.

Dams and Reservoirs - Dam and reservoir failures can cause can cause damaging flash floods. The sudden release of impounded water can occur during a flood that overtops or damages a dam or reservoir; this can occur on a clear day if the dam has not been properly constructed or maintained. The Kualapu'u Reservoir, is an earthen dam located in central Moloka'i, that stores 1.2 billion gallons of water for irrigation purposes. The dam is 57 feet high and is 7,100 feet long with a drainage area of 134 acres. This state regulated reservoir that was built in 1969 has a high flash flood hazard rating.⁵ The nearest town is Ho'olehua Palaaau Homestead located one mile away. Kualapu'u Reservoir has a state approved Emergency Action Plan (EAP) and an engineering assessment was completed in January 2015 [\(see Hazards map 4.2\)](#).

Detailed information and data on dam and reservoir failures is contained in the 2015 Maui County Hazard Mitigation Plan, Chapter 11.

High Surf - The most predictable and frequent coastal hazards in the Hawaiian Islands are sudden high waves combined with strong near shore currents. The greatest number of deaths, injuries and rescues are from high waves breaking at the shoreline. High surf is defined as waves ranging in height from 10 feet to 20 feet or more. High wave events threaten lives, coastal property, and infrastructure. High waves from hurricanes present a more complex hazard since they may coincide with high tide, storm surge, and high winds to produce a combined threat. They generally occur from June through December and most often hit the eastern shores of the Hawaiian Islands as hurricanes approach. High waves produced by north Pacific swells affect the entire northern coast of Moloka'i.

⁵ "High hazard" means a dam's or reservoir's failure will result in probable loss of human life.
Source: HAR-190-1-Dam-Safety-Rules1.pdf

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1 There is a greater threat to the more accessible and frequented areas along the north facing shores
2 of the west Kalaupapa Peninsula between Ilio Point and the town of Mo'omomi.⁶

3
4 **Wildfire** -Wildfire is the term applied to any unwanted and unplanned fire burning in forest, shrub, or
5 grass areas regardless of whether naturally or human induced. Historically, Moloka'i has been very
6 susceptible to wildfire; there are nine years on record where more than one thousand acres burned.
7 Between 1975 and 2009, wildfires on Moloka'i burned over 65,000 acres, which is approximately
8 twice as much acreage as wildfires consumed on Maui during the same time period. Wildfires can
9 cause widespread damage to watersheds, human communities, and associated downslope coral
10 reef ecosystems. The danger of wildfire is related to arid conditions, frequent high winds and the high
11 fuel potential of vegetation. Nine out of ten wildfires are human caused. —Moloka'i's central area
12 and west end are dry regions with agricultural lands that are particularly susceptible to drought
13 conditions, and are therefore at high risk of wildfire.

14
15 In the early 2000's the Moloka'i Fire Task Force was created to improve interagency coordination
16 and communication regarding wildfires on Moloka'i. The original core group consisted of Maui
17 County Fire and Rescue Operations, The Nature Conservancy (TNC) and the State Department of
18 Fish and Wildlife (DOFAW). The Task Force has since evolved and many other private sector, state,
19 county and local community agencies have become involved. The Task Force maintains a positive
20 working relationship between the myriad of agencies involved in wildfire protection and the Moloka'i
21 community.

22
23 The Task Force collects wildfire risk data and oversees development of the Community Wildfire
24 Protection Plan (CWPP). The CWPP addresses elements of wildfire protection, hazard assessment,
25 wildfire mitigation priorities, and community outreach and education. The goals and objectives of
26 the plan follow the requirements of the *Healthy Forests Restoration Act* (HFRA), which describes a
27 CWPP as a fire mitigation and planning tool for at-risk communities that meet criteria contained in
28 the HFRA.

29 *Detailed information and data on tsunamis is contained in the 2015 Maui County Hazard Mitigation*
30 *Plan, Chapter 14 (drought) and Chapter 15 (wildfire). Additionally, the impact of drought on Moloka'i*
31 *was addressed in the October 2004 County of Maui Drought Mitigation Strategies and the 2005*
32 *State Drought Plan.*

33
34 **Hazardous Substances & Waste** - The Hawaii Environmental Response Law (HERL) requires the
35 DOH to report annually to the State Legislature about sites with potential or known hazardous
36 substances, pollutants, or contaminants.⁷ The 2014 Site Rehabilitation Prioritization (SRP) List of
37 Priority Sites reported ten sites on Moloka'i with potential or known contamination. There was also
38 a list of sites eligible for possible remedial action under Comprehensive Environmental Response
39 Compensation and Liability Act (CERCLA) that identified one Moloka'i site for possible listing.

⁶ *Atlas of Natural Hazards in the Hawaiian Coastal Zone*, 2002

⁷ *Martin & Chock. (2010) Maui County Multi-Hazard Mitigation Plan.*

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1 Additionally, in 2014 there were four Molokaʻi sites located on federal property managed and funded
2 under the Department of Defense/State Memorandum of Agreement (DSMOA) Program.⁸

3
4 *Detailed information and data on high surf is contained in the 2015 Maui County Hazard Mitigation*
5 *Plan, Chapter 16.*

6 7 **B. ISSUES** 8

9
10 Issue 1: There is low public awareness about hazard preparedness, mitigation, response,
11 and recovery.

12 Issue 2: In coastal areas, [including Kaunakakai](#), SLR will increase risk of inundation,
13 flooding, storm surge, beach erosion, and shoreline retreat [and structural](#)
14 [damage](#).

15 Issue 3: ~~South-central Molokaʻi has a history of wildfires and the low-rainfall area west of~~
16 ~~Kaunakakai~~
17 [Molokaʻi](#) has a higher risk of wildfires.⁹

18 19 **C. GOAL, POLICIES, ACTIONS** 20

21 **Goal Molokaʻi will be prepared for natural and human-created hazards.**

22 23 **Policies**

- 24 1. Promote public education about natural and human-induced hazards in order
25 to improve preparedness and response and to reduce hazard risk and impacts.
- 26 2. Support a more coordinated emergency response system that includes clearly
27 defined and mapped evacuation routes and Red Cross approved shelters
28 located away from areas susceptible to natural hazards.
- 29 3. Support and advocate for better preparedness capacity by improving inter-
30 agency planning, coordination, and implementation.

⁸ *Environmental Response and Planning Community Knowledge Report to the Twenty-Seventh Legislature, State of Hawaii*
2014

⁹ *Draft Maui County Hazard Mitigation Plan Update, 2015*

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4. Support the integration of science based coastal hazards information into land use planning and permitting, including revision of the Special Management Area (SMA) boundary in accordance with Hawaii State Act 286 (2012) *Climate Change Adaption Priority Guidelines*.
5. Require that the shoreline development entitlement and permitting process include analysis of shoreline hazards, including erosion and SLR. Maximize protection of coastal natural resources and ecosystems and avoid the perpetuation of shoreline armoring.
6. Encourage the location or relocation of all critical infrastructure, facilities, and development out of the evacuation and inundation zones vulnerable to coastal hazards in accordance with the 2012 Hawaii State *Climate Change Adaption Priority Guidelines*.
7. Prioritize mitigation efforts that will provide potential funding opportunities to harden, flood proof, or retrofit vulnerable critical facilities and infrastructure.
8. Support the goals, objectives and actions of the 2015 *Moloka'i Community Wildfire Protection Plan*.
9. [Support the protection and restoration of natural systems, such as wetlands and dunes, for flood mitigation and climate change adaptation.](#)
10. [Promote the distribution of public education and outreach materials that explain FEMA's National Flood Insurance Program \(NFIP\).](#)
- ~~10,11.~~ [Per the Maui County Hazard Mitigation Plan, encourage the State to utilize the funding provided for in the State Highways Modernization Plan to retrofit, rehabilitate and/or replace highway bridges vulnerable to earthquake hazard.](#)
[Moved from action 4.16](#)

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1 Actions

2

Table 4.1 Hazards			
No.	Action	Lead County Agency	Partners
4.01	Continue the development of Moloka'i Incident Command Post in coordination with County Civil Defense.	Civil Defense	Red Cross Civil Air Patrol Police Department Fire and Public Safety DPW EMS VOAD
4.02	Identify and submit flood and pre-disaster mitigation projects that qualify for funding under the FEMA Pre-Disaster Mitigation Program, Hazard Mitigation Assistance Program, NFIP Severe Repetitive Loss Program and other FEMA funded mitigation and NFIP grants consistent with the Maui County Hazard Mitigation Plan.	Civil Defense	FEMA Region IX NFIP
4.03	Develop programs and distribute materials for public outreach and education to better educate the community on disaster preparedness, hazard mitigation, multi-hazard risks and vulnerabilities and post-disaster recovery. Target materials and programs that will provide information on steps to take to protect lives and strengthen property against natural and human related disasters.	Civil Defense	Fire Department Mayor's Office Environmental Coordinator Red Cross Molokai Wildfire Task Force
4.04	Seek community information on possible hazardous waste sites buried decades ago; investigate and remediate if needed.	Department of Environmental Management	State DOH Mayor's Office (Environmental Coordinator)
4.05	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to coastal hazards, including SLR, and develop a more coordinated emergency response system of well-defined and mapped evacuation routes.	Civil Defense	DPW DWS DEM
4.06	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to wildfires and develop a more coordinated emergency response system of well-defined and mapped evacuation routes. Formalize existing practices on the use of heavy equipment during fires.	Fire and Public Safety	DLNR- DOFA Volunteer Fire Crew Moloka'i Fire Task Force
4.07	Develop a wildfire information campaign and signage to build public awareness of wildfire hazard. Improve community awareness of the human, economic, and environmental costs associated with wildfires caused by negligence or accident. Engage the community in creating and maintaining fire breaks.	Fire and Public Safety	Moloka'i Fire Task Force Private Property Owners
4.08	Support wildfire mitigation activities such as green belts around subdivisions and vegetation control around power poles that will minimize risk of wildfire susceptibility to properties and subdivisions.	Planning	Moloka'i Fire Task Force MECO
4.09	Complete an inventory of vulnerable critical facilities and infrastructure. Include this information in Maui County HMP for future mitigation project funding.	Planning	Civil Defense

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Table 4.1 Hazards			
No.	Action	Lead County Agency	Partners
4.10	Map SLR projections for specific geographic areas on Moloka'i, utilizing data from the National Oceanic and Atmospheric Administration (NOAA) Digital Coast SLR and Coastal Flooding Impacts Viewer. Map other climate related coastal hazard areas.	Planning	NOAA Pacific Services Center, UH Sea Grant
4.11	Continue work with FEMA to update FIRMs that incorporate best available information on climate change and SLR.	Planning	FEMA
4.12	Implement additional CRS activities to improve class ratings and discounts on flood insurance premiums.	Planning	FEMA
4.13	Conduct erosion analysis of Moloka'i's shoreline to determine rate of erosion and use the results to determine setback calculations that also factor in incremental effects of SLR.	Planning	NOAA Pacific Services Center, UH Sea Grant
4.14 5	Coordinate with Federal, State and County agencies to obtain current SLR information and maps. Plan phased relocation of critical structures and roadways. Plan long-term strategic retreat of buildings. Identify priority planning areas where resources and planning efforts should be focused. Identify how and where to use adaptation strategies such as retreat, accommodation, and protection.	Planning	NOAA Pacific Services Center, UH Sea Grant Civil Defense DPW
4.15 6	Per the Maui County Hazard Mitigation Plan, update the HAZUS MH model to incorporate detailed data on state and county bridges located in Moloka'i.	Civil Defense	FEMA
4.16 7	Per the Maui County Hazard Mitigation Plan, utilize the funding provided for in the State Highways Modernization Plan to retrofit, rehabilitate and/or replace highway bridges vulnerable to earthquake hazard. Moved to policy 11.	Civil Defense	DOT
4.16 8	Support development of a cultural archive of the kupuna's knowledge of traditional hazard mitigation practices.	Planning	DHHL

1
2

5 | ECONOMIC DEVELOPMENT

Several key economic events have shaped the structure and vitality of Molokaʻi's economy. These also have influenced the population makeup and employment opportunities on the island. Molokaʻi has a long history of agriculture, beginning with the cultivation of taro and development of fishponds by the native Hawaiians. In 1859, Kamehameha IV established a sheep ranch at Kaluakoʻi which was the origin of Molokaʻi Ranch. In the 1920s, the first pineapple plantations were established and the island experienced an influx of immigrant workers. Other agricultural crops have been commercially produced on Molokaʻi including sugar, honey, sweet potatoes, and watermelon. In the late 1970s, the Kaluakoʻi Hotel along with its golf course and condominiums opened, officially introducing resort tourism to Molokaʻi. By the early 1980s, the pineapple operations closed ending plantation agriculture on Molokaʻi and triggering a substantial out-migration.

In 2000, two biotech seed corn companies, Monsanto and Mycogen Seeds, began operations that are now Molokaʻi's first and second largest private employers. In 2001, the Kaluakoʻi Hotel closed; then in 2008, the island's largest employer at the time, Molokaʻi Ranch, closed its operations and laid off 120 employees. This meant the loss of some important community amenities such as the Kaluakoʻi golf course, a gas station, and a movie theatre complex, ~~and a rodeo arena.~~

In an effort to find solutions to the island's economic challenges, the Maui Economic Development Board (MEDB) and the Molokaʻi Chamber of Commerce surveyed 90 Molokaʻi business representatives. The resulting 2009 report concluded that, "... the quality of the labor force and job applicants was a limiting factor for the Molokaʻi economy."¹ Education levels, job skills, and a shortage of local managerial talent were cited as contributing factors. In spite of these discouraging findings, MEDB also found that "...entrepreneurship is thriving on Molokaʻi and that resourcefulness is inherent in the community."²

A. EXISTING CONDITIONS

Molokaʻi's~~Hawaii's~~ economic development efforts face a unique set of challenges including:

- ✓ Limited local market capacity and competition due to the small, isolated population.
- ✓ Higher cost and limited product transportation options.
- ✓ Over-reliance on fossil fuel based imports for energy production and transportation of people, food, and materials.

¹ Maui Economic Development Board, *Entrepreneurship and the Future of Molokaʻi* (2009)

² Maui Economic Development Board, *MEDB Annual Report On Operations, July 1, 2008 – June 30, 2009*

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1 These economic challenges are magnified on Molokaʻi; finding workable solutions will require
2 thoughtful collaboration between business owners, major landowners, government entities, and the
3 community.

4
5 The USDA awards grants to communities throughout the United States that have high rates of poverty
6 and Molokaʻi has been designated one of these Rural Enterprise Communities for ten years from 1998
7 to 2008. Molokaʻi is economically disadvantaged due in part to the lasting combined impacts of the
8 Great Recession and the shutdown of the pineapple companies and of Molokaʻi Ranch. The following
9 2009-2013 American Community Survey statistics provide a snapshot of economic conditions on
10 Molokaʻi³:

- 11
12 • Molokaʻi has consistently had the state's highest unemployment rate; in November 2014 it was
13 14.2% versus the statewide average of 4.7%.⁴
- 14 • The 2009-2013 estimated median family income (MFI) for East Molokaʻi was of \$51,807 which
15 was 65% of the \$79,963 statewide MFI; West Molokaʻi MFI was \$44,656 which was 56% of the
16 statewide MFI.
- 17 • An estimated 21% of people living on Molokaʻi had incomes below the poverty level, which was
18 nearly double the statewide rate of 11%.
- 19 • On Molokaʻi, 28% of workers were employed in the government sector compared to 15% on Maui,
20 and 21% statewide. Alternatively, Molokaʻi had the lowest percentage of private-sector employees
21 at 63% compared to 75% on Maui, and 72% statewide.
- 22 • Molokaʻi had the highest percentage of workers employed in the agricultural, forestry, and fishing
23 industries at 7% compared to Maui at 2.4% and the state average at 1.5%.
- 24 • Molokaʻi has only one small hotel and 340 total visitor accommodation units that are mostly condos
25 and in 2014 the island had the lowest percentage of workers employed in the tourism sector with
26 15% versus 24% for Maui and 16% statewide.

27
28 Standard economic indicators such as unemployment rate, workforce composition, and personal
29 income levels may signify a community in distress; however, Molokaʻi has a significant subsistence
30 economy which provides a vital and viable substitution for many imported goods. This key sector in
31 Molokai's hidden economy is important to food sustainability and self-sufficiency.

32
33 A number of residents are very protective of their rural and traditional-based lifestyles and have
34 resisted economic development centered on commercial tourism, real estate development, and in-
35 migration of new residents; all important elements in most of the state's economic development
36 strategies. Although many Molokaʻi residents are willing to accept economic tradeoffs to maintain their
37 traditional lifestyles, others desire a more diversified, resilient, production and service-based economy.

³ American Community Survey, 2009-13 5-year Estimate (unless otherwise noted).

⁴ Hawaii State Department of Labor & Industrial Relations (DLIR), December, 2014

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There is considerable community support for agriculture, aquaculture, and an active community-based tourism sector. Many would like to see small local businesses and entrepreneurs become the primary drivers of Molokaʻi's economic renaissance. There is also a strong community desire to revitalize and reopen the Kaluakoʻi Hotel, the Maunaloa Lodge, the golf course, and the other amenities.

There is no longer a direct freight ferry service connection between Molokaʻi and Maui, which creates logistical problems for producers of perishable goods. The Young Brothers freight ferry schedule makes it difficult to ship perishable goods from Honolulu. Products originating or arriving outside of Hawaii first arrive in Oahu then move on to Molokaʻi. The additional leg of travel increases Molokaʻi shipping costs and shipping times, which can affect spoilage rates for agricultural products.

B. ISSUES

- Issue 1: Molokaʻi's weak economic base has been unable to provide a sufficient level of employment to meet the needs of residents.
- Issue 2: Transportation between Molokaʻi and the neighbor islands is costly and a challenge for economic development.
- Issue 3: Limited pool of qualified, well trained and reliable workers reduces local employment potential and makes business more challenging.

C. GOAL, POLICIES, ACTIONS

Goal A stable, balanced, diversified, and sustainable economy, respecting cultural and natural resources, that is compatible with Molokaʻi's rural island lifestyle.

Policies

1. Support diversification of Molokaʻi's economy.
2. Support improvements in education ~~and~~ training programs, and internship at all levels to ensure a well educated and well trained workforce.
3. Support the development of agriculture and value-added agricultural products.
4. Support small business assistance and training programs.

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5. Support expansion of complementary tourism markets including kama`aina, cultural, religious pilgrimage, eco, agricultural, sports, and hunting.
6. Support redevelopment projects such as Kaluako'i Hotel, [golf courses](#), and the [reopening of Moloka'i Ranch Lodge with community input to incorporate community culture and lifestyle](#).
7. Support the limited growth of permitted alternative lodging units that do not create an adverse impact on the neighborhood.
8. Support increased enforcement of the County's Short-Term Rental Home Ordinance to address the adverse impacts unpermitted rentals have on neighborhoods.
9. Advocate for Moloka'i's transportation interests.
10. Encourage the State Department of Transportation's implementation of harbor improvements.
11. Encourage the State Department of Transportation to expand and improve the airport.
12. Create regulations and procedures that will enhance and promote (not hinder) economic development [appropriate to the Moloka'i rural character](#).
- ~~13. Support the development of permitted home-based businesses.~~
- ~~14. Support economic development in Palaau State Park.~~
- [13. Support the discussion of using the abundance of venison and kiawe for new industries.](#)
- [14. Support art as a business.](#)
- [15. Support and encourage cottage and mini-industries such as garment and craft production as residentially based economic activities, provided such activities are compatible with the surrounding neighborhood.](#)
- [16. Support increased education and employment in conservation and restoration to create a sustainable economy.](#)

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1 Actions 2

Table 5.1 Economic Development			
No.	Action	Lead County Agency	Partners
5.01	Identify, target, and recruit new industries and businesses such as agricultural operations, aquaculture, venison , cultural arts and trades , and information technology.	OED	MEO MEDB DOH DLNR
5.02	Update/implement the Moloka'i Responsible Tourism Initiative.	OED	Maui Visitor's Bureau - Moloka'i chapter KAL-MEC
5.03	Continue to Assess potential shipping options including utilizing the ferry as a small cargo carrier between Maui and Moloka'i.	OED	Ferry Operators Public Utilities Commission
5.04	Continue to Work with inter-island airlines to keep airfares affordable and service frequency adequate to accommodate the needs of Moloka'i visitors, residents, and businesses.	OED	Airlines Shippers Public Utilities Commission
5.05	Develop a Moloka'i Agriculture Strategic Plan for both larger agri-businesses and small farms.	OED	University of Hawaii (UH) College of Tropical Agriculture and Human Resources (CTAHR)
5.06	Continue to Provide business courses to farm owners and agricultural entrepreneurs that include education about State and Federal loan and grant opportunities.	OED	Department of Agriculture Farm Service Agency Hawaii
5.07	Encourage the development of cooperative agricultural development programs between the County and the DHHL to support diversified agricultural pursuits.	OED	DHHL
5.08	Create a survey of the Moloka'i population to determine the reasons for the high rate of "discouraged workers".	OED	MEDB MEO
5.09	Continue and enhance educational opportunities for Moloka'i's students in areas such as STEM education, business management, leadership, agriculture, and vocational training.	OED	MEDB MEO DOE UH
5.10	Assess how environmental impact, invasive species, feral ungulates, natural resources, and other factors will negatively or positively impact Moloka'i's present and future.	OED Mayor's Office – (Environmental Coordinator)	DLNR EPA MEDB
5.11	Develop a permanent appropriate site for the farmer's market in Kaunakakai to promote locally grown fresh produce and products.	OED	MEDB
5.12	Identify economic opportunities for the use of targeted plant and animal species for value added products	OED	
5.13	Assess which development regulations are going to discourage investors from making improvements on Molokai.	OED	Planning Department
5.14	Explore the possibility to provide incentives to landowners to help bring county code legacy issues into compliance for the purpose of maintaining affordable housing.	DHHC	Planning Department

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Table 5. 1 Economic Development			
No.	Action	Lead County Agency	Partners
5.15	Support Workforce development efforts to help improve Moloka'i's economy.	OED	Hawaii Workforce Development Dept.
5.16	Develop opportunities to get more local agricultural products into local markets.	OED	HDOA Market Development Branch

6 | LAND USE AND HOUSING

Land use refers to the way in which we use and manage land, whether for agriculture, environmental preservation, recreation, business, or housing. Land use policies and practices help to ensure an adequate and affordable supply of housing by designating where housing can be built in relation to other uses. Progressive land use and housing policies strive to ensure sustainable communities with a variety of housing opportunities proximate to jobs, services, parks, infrastructure, and transportation. The Community Plan sets the framework to create livable communities for Molokaʻi's people while protecting agricultural lands, environmental resources, and the rural character of the island.

6.1 Land Use

Molokaʻi is a rural island based on an agricultural economy. The island has three distinct geographic regions with small towns and dispersed rural settlement. The island has very limited commercial and tourism development. Molokaʻi's settlement patterns have been greatly influenced by the establishment of plantation agriculture and ranching, the development of irrigation systems, and the ~~1924~~ [Hawaiian Homes Commission Act of 1920 as amended, enacted in 1921](#). The visitor industry began on Molokaʻi in the late 1960s with the opening of the Hotel Molokaʻi and Pau Hana Inn in Kaunakakai, and on the west end with the Kaluakoʻi Hotel opening in 1977. The Pāpōhaku Ranchlands Subdivision, established in 1981 on the West End, signified the beginning of resort real estate development on Molokaʻi.

A. EXISTING CONDITIONS

Molokaʻi's current land use patterns are characterized by small towns surrounded by vast agricultural lands, rural homestead settlements, resort development at Kaluakoʻi, and scattered rural development along the island's southeast coast. Kaunakakai is the island's population and commercial center and the smaller towns of Kualapuʻu, Maunaloa, and Ualapuʻe are important service centers for those communities.

Table 6. 1: Population of Molokaʻi's Small Towns

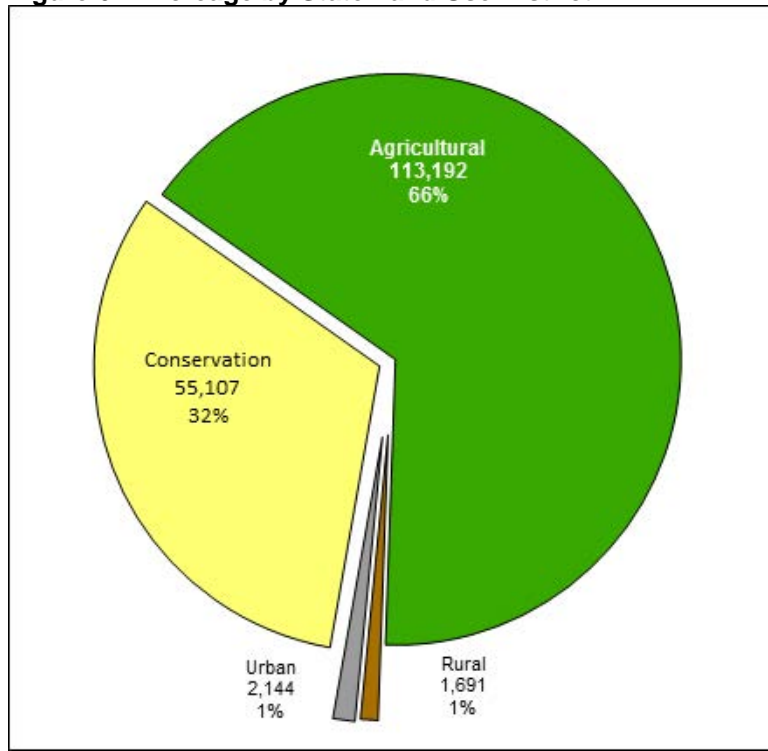
Town	2010 Population
Kaunakakai	3,425
Kualapuʻu	2,207
Maunaloa	376
Ualapuʻe	425

Source: U.S. Census Bureau, *2010 Census*

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The vast majority of Molokaʻi's lands are within the State's Agricultural and Conservation Districts, with only a small percentage designated as Rural and Urban (see Figure 6.1).

Figure 6. 1 Acreage by State Land Use District



Almost all of the land on Molokaʻi designated Urban by the State Land Use Commission (SLUC) is County zoned Interim. The exceptions are those properties for which a zoning change has been granted. Interim zoning has significant consequences for landowners and businesses:

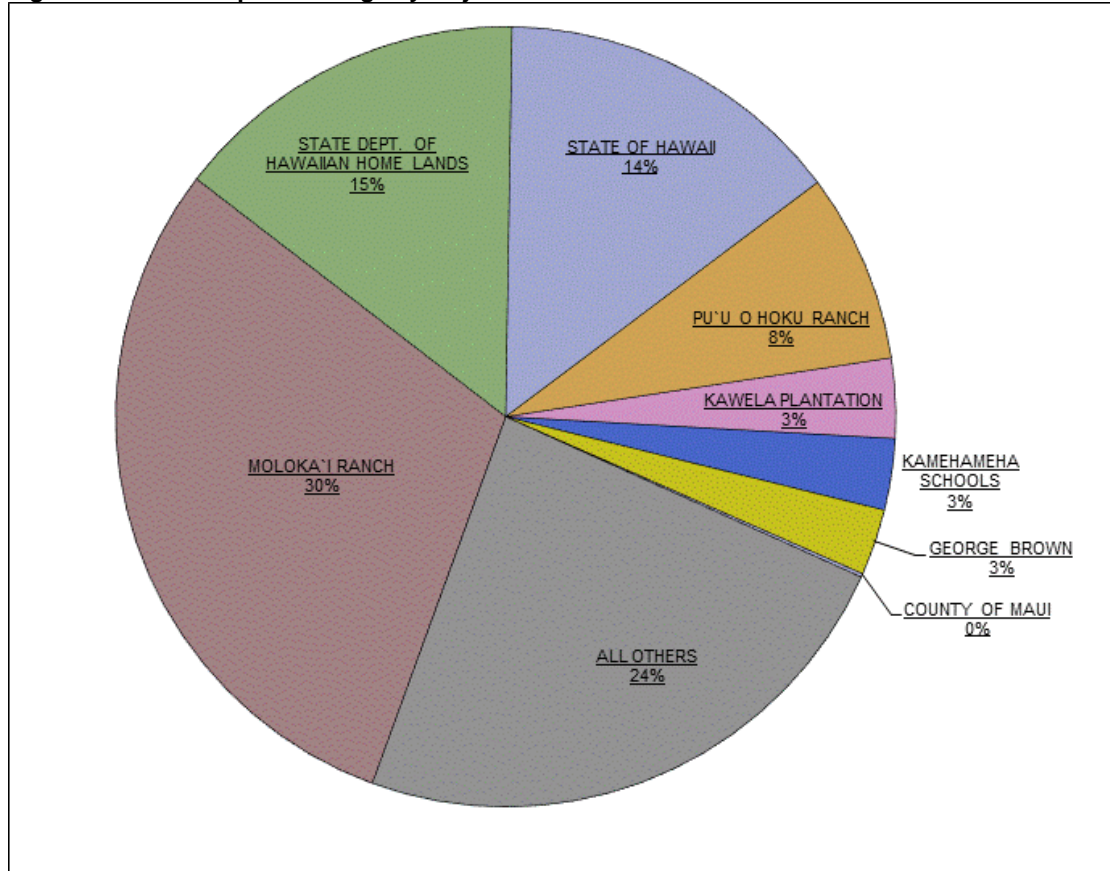
- Interim zoning adds considerable time and expense to the land use permitting process.
- Interim zoned property cannot be subdivided nor can conditional permits be granted.
- Commercial use of Interim zoned property is considered non-conforming since commercial is not permitted in the Interim District.
- Interim zoning allows densities and uses that are potentially undesirable in some areas.

A majority of Molokaʻi land is held by a few landowners and ownership patterns vary among the island's three regions (see Figure 6.2). West Molokaʻi is almost entirely owned by Molokai Ranch. Central Molokaʻi has large areas owned by the Department of Hawaiian Homelands (DHHL) and by Molokai Ranch, as well as smaller landowners. East Molokaʻi is largely held by small landowners some of which are *kuleana* grants. In the Halawa area Puʻu o Hoku Ranch has extensive property.

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DHHL is not required to comply with the Maui County General Plan, zoning and subdivision regulations, and County building and other ministerial permits. However DHHL does require lessees to obtain building permit approval from the County Department of Public Works because DHHL does not have its own building code. This jurisdictional arrangement has caused confusion for some DHHL lessees and other community members.

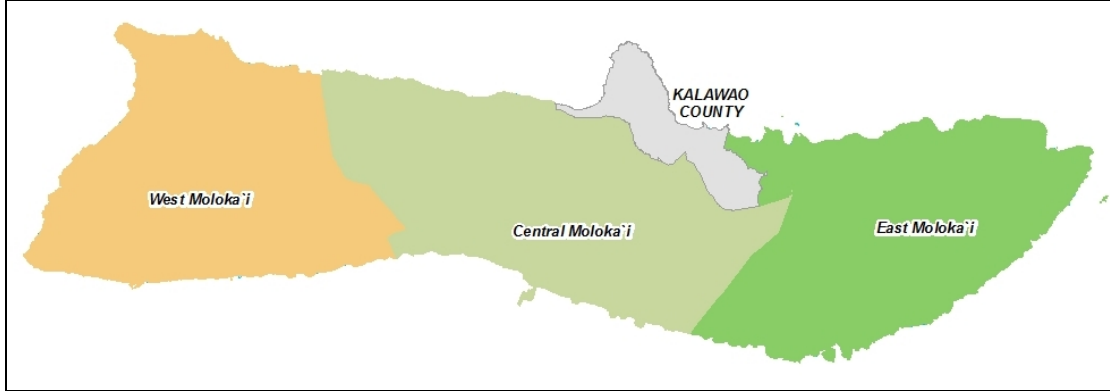
Figure 6.2 Ownership Percentage by Major Landowner



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Molokaʻi's elongated shape embraces widely varying topographic and climatic regimes. For planning purposes, the island is divided into three regions – East Molokaʻi, West Molokaʻi and Central Molokaʻi (see Figure 6.3)¹.

Figure 6.3 Molokaʻi Planning Regions



East Molokaʻi

East Molokaʻi is the island's most remote and sparsely populated region. This region is also known as the East End, or Mana'e which is defined as "to the east – a direction."² East Molokaʻi rises to the summit of Kamakou at 4,970 feet. This mountainous region has been sculpted by heavy windward rainfall creating the deep verdant valleys of Pelekunu, Wailau, and Hālawā. The primary land uses are conservation and cattle ranching, with small rural settlements along the southeast coast at ʻUalapuʻe, Pūkoʻo, Pauwalu, Waialua, and Hālawā. The southeast shore is also known for its historic fishponds, some of which are currently being restored.

Central Molokaʻi

Central Molokaʻi is a varied landscape of high verdant forested plateaus, rugged and gentle coastlines, and a dry central plain that when irrigated provides some of the most fertile agricultural lands in Hawaiʻi. Kaunakakai is the principal commercial, civic and population center of the island with 47% of total island population. Other Central Molokaʻi population centers include the former plantation town of Kualapuʻu and the Hawaiian homesteads at Hoʻolehua. The island's primary industrial site is in the Molokaʻi Industrial Park at Palaʻau and near the shore in Kaunakakai.

Central Molokaʻi is also the island's bread basket. Agricultural resources include approximately 11,500 acres of Prime Agricultural Land³, the Molokaʻi Irrigation System, and

¹ Region boundaries follow Tax Map Key (TMK) lines.

² Pukui, Hawaiian Dictionary, 1971, University of Hawaii Press

³ State Department of Agriculture, November, 1977. Agricultural Lands of Importance to the State of Hawaii Revised

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the island's only State owned agricultural park, comprising 753 acres (see Map 6.1). Moloka'i's agricultural lands support the island's existing agricultural economy, provide the opportunity for subsistence agriculture, provide future opportunities for agricultural enterprises, and significantly contribute to the island's vast open space and rural character. While Moloka'i's agricultural lands are not under the level of pressure from encroaching urbanization like other areas in the state, implementing tools to protect these lands is a proactive step to ensure these resources are available for future generations.

West Moloka'i

West Moloka'i is on the hot and dry leeward side of the island. Its highest elevation is at Pu'u Nana, elevation 1,381 feet. Cattle ranching is the dominant land use in the region. Kaluako'i Hotel closed in 2001, followed by the opening of the Lodge at Molokai Ranch and the Molokai Beach Village Tent Cabins at Kaupoa Beach in 2002. However, despite efforts to make Molokai Ranch profitable, all of its West Moloka'i operations were shut down in 2008. As a result economic activity and the visitor population in West Moloka'i have declined. Some condos and single-family homes remain in the Kaluako'i- Pāpōhaku area, and limited services remain in Maunaloa for the town's small population. As of 2015, Molokai Ranch is pursuing enterprises in animal husbandry, farming, renewable energy, and hospitality.

B. FUTURE CONDITIONS

The Land Use Forecast⁴ concludes that sufficient developable lands currently exist on Moloka'i to meet future demand for housing units, for visitor units, and for commercial and industrial space through the year 2035 (see Table 6.2). This supply of land is in areas identified on the 2001 Moloka'i Community Plan Map for urban type uses. The majority of the identified vacant residential land supply is in Kaluako'i and is Community Plan designated single family and multi-family residential. Kaunakakai contains a lesser amount of vacant residential land which is located primarily mauka of the existing town. Infill opportunities exist within Kaunakakai town and also exist in Ualapue, Kawela, Kualapu'u, Ho'olehua, Kalae, and Maunaloa.

The potential future impacts from sea level rise to existing coastal development are important factors to consider for Moloka'i. Some of the islands existing development and vacant land supply along the south shore, east end, and in Kaluako'i may be impacted by future sea level rise, increased coastal flooding, and expensive flood hazard insurance rates. The Moloka'i community acknowledges that sea level rise will likely necessitate over time transitioning the island's commercial and population center from Kaunakakai to an area away from the threat of sea level rise and other coastal hazards; however, the new location has not been determined community feels that it is premature at this time to identify relocation sites. This identification and analysis should be addressed in the next decennial update of the Moloka'i Community

⁴ County of Maui Department of Planning. (October 2013). *Land Use Forecast Island of Moloka'i Maui County General Plan Technical Resource Study*.

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1 ~~Plan. In this update, t~~The plan puts forth land use planning principles and standards and
2 supporting policies and actions ~~designed to discourage direct growth in to areas prone not~~
3 vulnerable to sea level rise and coastal hazards and ~~encourages growth in areas~~ conducive to
4 providing ~~workforce~~ housing for residents proximate to employment and services. The
5 purpose is to ensure that Moloka'i will grow in a balanced and sustainable manner that
6 respects cultural and natural resources and that is compatible with Moloka'i's rural lifestyle.

7 8 **Maunaloa Mixed Use Residential**

9 The area previously identified in the 2001 Moloka'i Community Plan as the Maunaloa Project
10 District has been changed to Mixed Use Residential and encompasses approximately 64
11 acres. This area will be primarily residential with a majority of workforce and affordable
12 housing. There will be a variety of single family and multi-family residential housing. Business
13 commercial uses will be small scale neighborhood support services such as markets,
14 restaurants, laundromats, doctor's offices, and hardware stores. The sequence for
15 developing business commercial will occur as needed to serve the community ~~after the~~
16 ~~Maunaloa Lodge reopens if existing commercial uses transition to catering to visitors rather~~
17 ~~than the community~~. Molokai Ranch's headquarters office may relocate into this area as the
18 need arises. Public/quasi-public uses will be developed as needed to serve the community.
19 This area will include sufficient neighborhood parks to accommodate the population. As
20 defined in Appendix 6.2, light and heavy industrial uses are not included in mixed use
21 residential. Site plan review and land use entitlement for the Maunaloa Mixed Use Residential
22 area shall be for the entire acreage. Determination will be made at the time of entitlement as
23 to whether a project district, detailed zoning, or other means, will best achieve the goals stated
24 above.

25 26 **Subarea Descriptions**

27 While the entire island of Moloka'i is covered by one community plan, the island has three
28 distinct planning regions, each containing multiple communities. The three planning regions
29 have overlapping island-wide issues as well as specific regional issues and aspirations.
30 Subarea descriptions are community created statements that tell the story of an area and the
31 desires of the community for future protection, restoration, and development. Subarea
32 descriptions may include general or site narratives and preliminary design concepts to help the
33 community visualize potential changes, but would not include policies and actions. They are
34 intended for use in future community plan updates to shape policies and actions.

Land Use Planning Principles and Standards

1. **Protect ecological diversity, natural resources, culturally sensitive lands, and agricultural lands and avoid hazard-prone lands when identifying future growth areas.** Molokaʻi's ecology, natural, and cultural resources, and agricultural lands are important for both current and future generations.
2. **Protect open space and scenic landscapes.** Open space should be preserved to retain Molokaʻi's rural character and to separate and define distinct edges of communities. Scenic landscapes, viewsheds, and view corridors are integral to place identity and should be retained.
3. **Strengthen existing communities through infill and redevelopment.** Support revitalization of existing communities and infill development on underutilized infill lots, where appropriate outside of hazard-prone areas.
4. **Promote equitable and livable ~~mixed-use~~ communities with compatible land use designations.** Molokaʻi's small towns should provide a mix of housing types and affordability, compact and pedestrian-oriented development, access to parks and open space, and a mix of compatible and complementary land uses. Future growth areas will be contiguous or proximate to existing employment and/or housing^{7.1} and located where infrastructure and public facilities can be provided in a cost-effective manner.

1

2

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C. ISSUES

- Issue 1: There is no comprehensive zoning map for Molokaʻi and the existing zoning code and Interim zoned lands present significant obstacles due to inconsistencies with the community plan.
- Issue 2: The Special Management Area (SMA) boundary does not protect some areas of the near-shore environment and coastal resources and extends inland in areas that are not likely to have coastal impacts.

D: GOAL, POLICIES, AND ACTIONS

Goal Molokaʻi's land use pattern will protect agricultural lands, open space, and natural and cultural resources, ~~systems~~ and support livable small towns and rural communities.

Policies

1. Ensure all lands are zoned for specific land uses and zoning standards are consistent with Community Plan policies.
- ~~2. Encourage but do not limit resort development to the West End.~~
- ~~3.2.~~ Support the revitalization of Maunaloa Town and Kaluakoʻi resort area.
- ~~4.3.~~ Direct growth to vacant and underutilized infill lots outside of hazard prone areas and proposed expansion areas as shown on the Molokaʻi Community Plan Land Use maps (see Maps 6.2 – 6.4) and as described in Section B Future Conditions.
- ~~5.4.~~ Limit urban zoning to areas designated for urban use on the Molokaʻi Community Plan Land Use maps (see Maps 6.2 – 6.4).
- ~~6.5.~~ Where possible, site community facilities such as schools, parks, libraries, and community centers within walking and biking distance of residential areas.
- ~~7.6.~~ Facilitate the provision of infrastructure and public facilities and services prior to, or concurrently with, development, including provision for on-going maintenance through district funding or other funding mechanisms.

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1 ~~8-7.~~ Work with DHHL and other large landowners to coordinate land use,
2 infrastructure, and public facility planning when feasible.

3
4 ~~9-8.~~ Establish a predictable and timely ~~development~~ review process to facilitate the
5 approval of projects that meet planning and regulatory requirements.

6
7 ~~10-9.~~ Discourage developing or subdividing agricultural lands for
8 residential uses where the residence will be the primary use and agricultural
9 activities will be secondary uses.

10
11 ~~11. Allow, where appropriate, the clustering of development on agricultural and rural~~
12 ~~lands when approved as a Conservation Subdivision Design plan or similar~~
13 ~~approval mechanism.~~

14
15 ~~12-10.~~ Encourage green belts, open space buffers, and riparian zones
16 to minimize conflicts between agriculture, residential, and industrial uses.

17
18 ~~13-11.~~ Support expansion of the Molokai Agricultural Park as demand
19 warrants.

20
21 ~~14-12.~~ Regulate land use in a manner which reaffirms and respects
22 customary and traditional rights of Native Hawaiians as mandated by Article 12,
23 Section 7, Constitution of the State of Hawaii.

24
25 ~~15-13.~~ Support the expansion of the State Conservation District
26 boundary where warranted for environmental preservation and habitat
27 enhancement.

28 ~~16-~~
29 ~~17-14.~~ Discourage hotel and multifamily development on the East End.

30
31 ~~18-15.~~ Support and recognize community created subarea descriptions.

32 ~~19-~~
33 ~~20. Limit commercial services of the East End to businesses catering to the East End~~
34 ~~community.~~

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1 Actions

Table 6. 2 Land Use			
No.	Action	Lead County Agency	Partners
6.1.01	Adopt a comprehensive zoning map for Molokaʻi. Conduct a comprehensive review of interim zoned lands to identify and adopt zoning that is consistent with the Community Plan.	Planning Department	
6.1.02	Amend the zoning code to facilitate the development of mixed-use, pedestrian oriented communities.	Planning Department	
6.1.03	Implement County responsibilities under Acts 183 (2005) and 233 (2008) to designate and establish Important Agricultural Lands (IAL) and the incentives therein.	Planning Department	
6.1.04	Review the SMA boundary and make changes as necessary to comply with the objectives and policies defined in HRS § 205A-2 and incorporate best available information on Climate Change and SLR.	Planning Department	
6.1.05	Research and review poor or highly sloped agricultural lands for conversion to different designations.	Planning Department	

6.2 Housing

Housing affordability is a significant issue throughout the County of Maui, and Molokaʻi is no exception. Shortages of reasonably priced housing can contribute to high rates of crowding, lower ownership rates, and impact the overall quality of life within a community. Additionally, investment or second home purchases may increase housing prices if the properties are used as tourism rentals rather than owner-occupied or long-term rental homes.

Housing affordability can improve when residences are built near employment, services, and existing infrastructure and outside of flood hazard areas. Mixed-use communities zoning allows residents to live near their workplace and services reducing transportation costs. The ability of residents to purchase or rent can also improve when there is an accessory ʻohana unit to provide rental income or to house family members. Housing development plans must address factors affecting affordability, community character, and special needs populations such as disabled residents and the frail elderly.

It is also important for new development to provide a variety of lot sizes, housing types, tenures and price points that accommodate the a range of household types, life stages (i.e. single, married, with children, multigenerational, etc.) and income levels. Ensuring housing variety on Molokaʻi will increase residents' ability to remain on island when family or economic circumstances change.

A. EXISTING CONDITIONS

The majority of the housing units on Molokaʻi were built before 2010. Of these, more than half were built in the 1970s or earlier. Only 10% of units were built on Molokaʻi between 2000 and 2010. Central Molokaʻi home construction peaked in the 1970s, while West Molokaʻi construction peaked in the 1980s.⁵

Molokaʻi's housing stock is predominantly single family units, which limits housing options and can present challenges when residents experience family or economic changes. The existing housing stock includes 2,623 single family units and 879 multifamily units, for a total of 3,502 units.⁶ The 2010 vacancy rate was 28%, slightly higher than on Maui Island (23%) and Lānaʻi (25%). Molokaʻi's household size is 2.92 persons per dwelling unit.⁷

Affordable housing is defined by the U.S. Department of Housing and Urban Development (HUD) as housing for which the occupants are paying no more than 30% of their income for gross housing costs, including utilities. By this standard, less than half of Molokaʻi renters and home owners pay unaffordable rents or monthly ownership costs, indicating that housing is more affordable on Molokaʻi compared to the rest of Maui County.

⁵ County of Maui, Department of Planning. (October 2013). *Land Use Forecast Island of Molokaʻi*.

⁶ Ibid.

⁷ U.S. Census Bureau, 2010.

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Figure 6.4 shows that from 2007 to 2011, 49% of Moloka'i renters paid more than 30% of their household income for housing costs versus 53% of Maui County renters and 56% of renters statewide.⁸

Figure 6.4 Gross Rent as a Percentage of Household Income

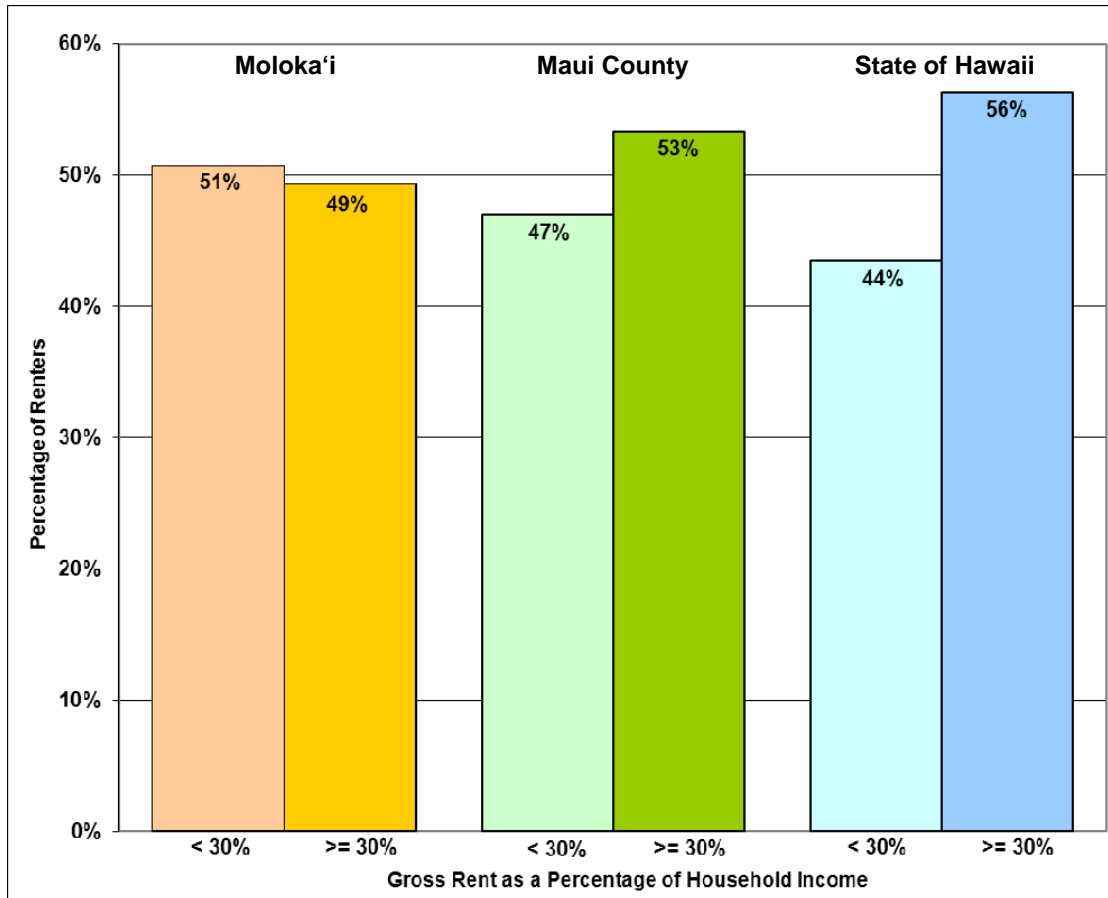


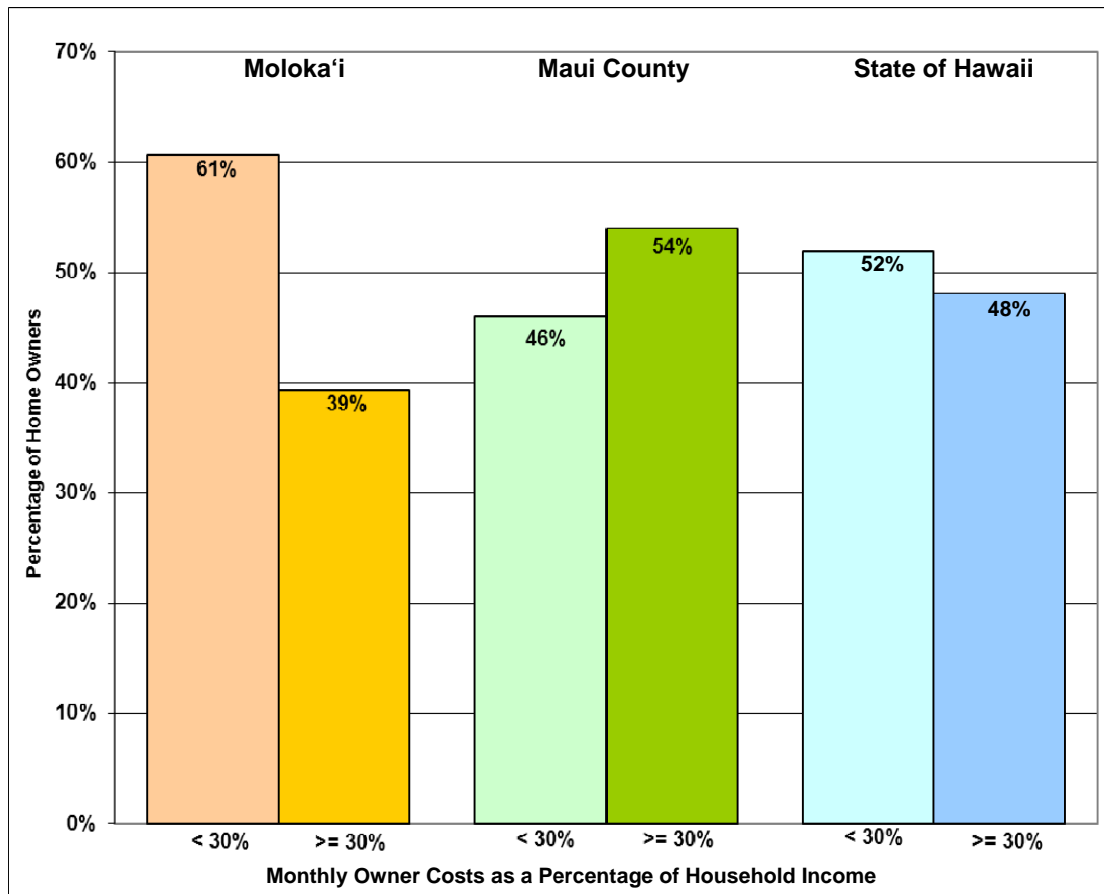
Figure 6.5 shows that from 2007 to 2011, 39% of Moloka'i home owners with mortgages paid more than 30% of their household income for housing ownership costs versus 54% of Maui County home owners and 48% of owners statewide.⁹

There are several factors inhibiting the development of a long-term supply of affordable housing on the island including the weak economic base, high construction costs, few vacant lots with infrastructure in place, and lack of available financing.

⁸ U.S. Census Bureau, 2009-2013 American Community Survey 5-Year Estimates.

⁹ Id.

Figure 6. 5 Monthly Owner Costs as a Percentage of Household Income



Currently three agencies are working to make more affordable housing available on Moloka'i: a) the Department of Hawaiian Home Lands (DHHL), b) the Moloka'i Affordable Homes and Community Development Corporation, and c) Moloka'i Habitat for Humanity. DHHL's planned total housing unit build out to 2025 for new lots is as follows: 422 new residential homestead lots and 350 new agricultural lots, located in Na'iwa, 'Ualapu'e, Kamiloloa, Kapa'akea, Makakupa'ia, Kalamaula, and Ho'olehua.¹⁰ Additionally, the County of Maui's Workforce Housing Ordinance requires developers proposing new development to provide a certain percentage of affordable housing.

Moloka'i has an aging population that requires supportive services and senior housing options, and this need is projected to increase in the future. Moloka'i has one senior housing facility with approximately 85 units for low and moderate-income seniors; however there is no long-term residential care facility on the island. Moloka'i General Hospital can provide skilled nursing care and intermediate care, but it is neither equipped nor staffed to be a long-term residential care facility.

¹⁰ Group 70 International. (June 2005). *Department of Hawaiian Homelands Moloka'i Island Plan*.

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B. ISSUES

- Issue 1: There is a need for more affordable housing and affordable residential building sites.
- Issue 2: There is a lack of housing choices at different price levels and housing sizes.
- Issue 3: There is an increasing need for housing and services for special needs populations.

C: GOAL, POLICIES, AND ACTIONS

Goal A diverse supply of housing for Molokaʻi residents that is affordable, safe, and environmentally and culturally compatible.

Policies

1. Support regulations to maintain an adequate supply of affordable housing.
2. Require that County mandated affordable housing have a buy-back provision so these units will remain in the affordable housing stock.
3. Maintain a supply of ~~County~~government subsidized affordable rental housing.
4. Encourage development of a range of lot sizes and housing types (such as, single family, ohana units, duplexes, multifamily, and live-work units) to expand housing choices and price points.
5. Encourage new housing to be developed in locations conducive to affordability, for example, proximate to jobs, services, infrastructure, and public facilities, and outside of flood hazard areas.
6. Support the establishment of long-term residential care facilities and a diversity of appropriate housing opportunities for residents with special needs.
7. ~~Encourage~~Explore the establishment of a community land trust to improve access to affordable land and housing.

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1 Actions

Table 6.3 Housing Actions			
No.	Action	Lead County Agency	Partners
6.2.01	Develop and implement a comprehensive affordable housing plan for Molokaʻi.	Housing and Human Concerns (DHHC)	Molokaʻi Affordable Homes and Community Development Corporation, Molokaʻi Habitat for Humanity NGOs Community Groups
6.2.02	Implement a housing rehabilitation program including loans, grants, technical assistance and community outreach.	DHHC	DHHL
6.2.03	Amend the zoning code to allow a greater variety of housing types to address affordability, including mixed-use, mixed housing types, co-housing, prefabricated homes, and small lots.	Planning Dept.	DHHC DHHL NGOs
6.2.04	Provide assistance with securing/leveraging grants, Low Income Housing Tax Credits, and other resources that support affordable housing, such as housing models that can be built affordably.	DHHC	
6.2.05	Investigate whether Nāa Hale ʻŌ Maui , a community land trust on Maui , would consider operating on Molokaʻi.	DHHC	Planning Dept. Nāa Hale ʻŌ Maui
6.2.06	Encourage DHHL to establish a building code that protects public health and safety and benefits DHHL beneficiaries.	DPW	

2

7 | COMMUNITY DESIGN

Some of the most distinctive aspects of Molokaʻi are its wide open spaces, small towns, varied landscapes, and architecture, which reflects both Hawaiian tradition and the island's plantation history. They collectively create an identity unique to Hawaii, perhaps best expressed in a sign commonly seen on the island – “Keep Molokaʻi, Molokaʻi”.

During several community plan workshops, many residents on Molokaʻi voiced a desire to maintain and enhance this rural character and natural beauty. New growth will require special attention to ensure that the rural, historic character of Molokaʻi's small towns is retained. Creating a county historic district in selected locations could help to address the loss of historic structures.

A. Existing Conditions

Molokaʻi's rural character is reflected in its settlement patterns, housing, streetscapes, roadways, public spaces, and the design of public institutions. Remnants of this era are found in Maunaloa, Kualapuʻu, Hoʻolehua, Kaunakakai, and parts of the east end. While Kaunakakai is compact and still retains its country town character, it could benefit from some careful design to enhance the natural beauty and improve walkability. Unfortunately, the historic character of the streetscapes and buildings has been compromised by some demolitions [and unpermitted construction](#).

One of the most important tools the County has to address this incremental loss of architectural history is the Country Town Business District Design Guidelines. These guidelines, [which are outdated and need to be updated](#), cover the small towns of Kaunakakai, Maunaloa, and Kualapuu along with the East End. Although the current version is over 20 years old, it is the only planning document that defines appropriate site design, street design, and architectural design standards.

Despite slow growth over the past 30 years, many of Molokai's historic buildings have been significantly modified. As an example, the plantation-town character of Maunaloa was substantially altered when many of its plantation era homes were demolished. In addition, there is little commercial activity in the town, resulting in several vacant commercial buildings.

B. ISSUES

Issue 1: The character of Molokaʻi and its small towns is an essential part of the island's identity that could be compromised by new development that is out of scale and is visually incompatible.

Design Principles

Preserve and maintain the traditional features of the built and natural landscape that reflect Molokaʻi's history and give the island its distinctive character. Some of the character-defining features include the wide open spaces between communities, unobstructed views of the ocean, access to the shoreline, and simple, understated buildings.

Encourage a mix of land uses in Molokaʻi's small towns. Encourage a mix of commercial, residential, and service uses to strengthen the island's small towns, to reduce the need for travel, and to make efficient use of infrastructure.

Preserve and enhance the historic character of Molokaʻi. Renovate historic structures as a way of maintaining Molokaʻi's history. Design new buildings and other improvements to complement and enhance the town's historic character.

Develop a circulation system and facilities to accommodate a variety of travel modes - bicycles, pedestrians, buses, and vehicles. Create a comprehensive network of travel options, with an emphasis on the pedestrian experience. Even as more areas are developed, they should be part of an island-wide transportation system that encourages and accommodates a variety of travel modes to serve both residents and visitors.

Maintain a pedestrian orientation in Molokaʻi's small towns. Preserve and enhance sidewalks, parks, and other open spaces in small towns and other community areas to provide connectivity between land uses and offer a safe, inviting, and comfortable pedestrian experience.

C. GOAL, POLICIES, AND ACTIONS

Goal **The rural character of Molokaʻi's small towns and the island's open spaces will be maintained and enhanced.**

Policies

1. Continue to use the Business Country Town Design Guidelines to ensure that the island's historic and rural character is maintained.
2. Encourage the preservation of buildings, structures, and sites of historic and cultural significance.
3. Maintain Kaunakakai's business development and historical character.
4. Promote and support projects that create a pedestrian-friendly environment with street trees, benches, and other features in Molokaʻi's country towns.
5. Maintain and enhance the rural character of the Kaluakoʻi area through low-impact site design and development practices.
6. Encourage creative innovative approaches to site design, subdivision layout, and architecture to maintain the island's rural character and to protect coastal areas, natural resources, and cultural/historic resources.
7. Concentrate future growth in and around existing development that maintains county rural standards, and is located outside of the flood inundation zone.
8. Promote the use of sustainable building and development practices such as those presented in the Leadership in Energy and Environmental Design (LEED) standards.
9. Encourage the use of [the County of Maui plant list](#). ~~native, non-invasive and drought tolerant plants.~~

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Table 7.1 Community Design			
No.	Action	Lead County Agency	Partners
7.01	Amend the 1993 Moloka'i Country Town Business Design Guidelines.	Planning Dept.	Moloka'i business and design professionals and community
7.02	Develop sub-area development plans for Kaunakakai, Maunaloa, Kaluako'i Kualapu'u / Ho'olehua, and the east end of Moloka'i.	Planning Dept.	Community Groups
7.03	Develop a pedestrian linkage between Malama Park and Kaunakakai through streetscape improvements.	Planning Dept.	Parks Dept. DLNR
7.04	Develop and adopt rural and small town street design standards that are appropriate for Moloka'i.	DPW	Planning Dept.
7.05	Create a funding source or mechanism for small business owners to renovate businesses in the island's small towns.	OED	Planning Dept.
7.06	Develop incentives to promote the use of sustainable green building and development practices.	DPW	OED or Energy Coordinator
7.07	Develop practicable incentives for Moloka'i businesses and property owners to implement sub-area development plan projects purposed to preserve, maintain, and enhance buildings, structures, sites, viewpoints, pedestrian ways, and streets.	Planning Dept.	Parks Dept. DPW
7.08	Conduct a study to improve walkability in Kaunakakai.	Planning Dept.	Parks Dept. DPW NGOs
7.09	Review and update the indigenous architecture ordinance as appropriate.	Planning Dept.	
7.10	Investigate options to share the cost of BCT guideline requirements for infrastructure upgrades among all Kaunakakai businesses, such as an Assessment District, so that renovations are economically feasible.	Planning Dept.	

2

8 | INFRASTRUCTURE

Safe, reliable and efficient hard infrastructure and utility systems are critical to the economic vitality and quality of life on Molokaʻi. Roads, bridges, harbors, airports, water, wastewater, solid waste, energy, telecommunications and public transit systems provide necessary support for modern life on the island. Responsibility for the installation, operation and maintenance of these systems on Molokaʻi is shared between a number of public and private entities. Planning for the installation of new systems and the replacement of deteriorating systems may require coordination among these entities as well as the identification of additional funding sources since County Capital Improvement Program budgets are already strained. Consideration should be given to locating future development near existing infrastructure to leverage prior capital investments and to minimize the high cost of installing new systems.

Climate Change and Infrastructure Systems

Sea level rise and the associated coastal impacts have the potential to harm an array of infrastructure and environments in Molokaʻi including: low lying coastal roads, docking facilities in harbors, water supply and wastewater systems. In many cases these impacts will stress an already ailing infrastructure. Wastewater systems, stormwater infrastructure, water supply and energy facilities are located in low lying areas in close proximity to the coast. Water supply faces threats from both rising groundwater and saltwater intrusion in wells, as well as declining quality and quantity due to drought and downward trends in groundwater base flows.

Improving system resiliency by developing strategies to adapt to environmental challenges such as drought and climate change will be important going forward. This will require identification of critical infrastructure systems that are vulnerable to coastal hazards such as sea level rise to ensure that they are adequately protected or relocated if necessary. For Molokaʻi to have a more sustainable future, it will be necessary to incorporate green infrastructure to restore natural systems where possible.

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8.1 WATER

A. EXISTING CONDITIONS

There are three public water systems on Molokaʻi and three private water systems. Most of Molokaʻi's water sources are concentrated in the northeast part of the island, whereas, most of the demand is located in the more developed areas to the Central and West Molokaʻi and the southeast coast. Water sources include both ~~streams~~ (surface water) and ~~aquifers~~ (groundwater). Due to increasing withdrawals, several wells have been experiencing rising salinity, and as a result, the State Commission on Water Resource Management (CWRM) designated the island as a Ground Water Management Area in 1992. With this designation, the State was authorized to protect the groundwater resources by managing withdrawals from the aquifer through use of a permitting process. [In 1994, EPA designated Molokaʻi as a Sole Source Aquifer, meaning the aquifer supplies more than 50% of Molokaʻi's drinking water.](#)

Molokaʻi Irrigation System (MIS) water usage has remained constant over the years; however, the system has experienced water shortages due to persistent drought conditions. Efforts to develop new water resources have been considered, such as utilizing brackish water wells and recycled sewage effluent. The County 2015 Capital Improvement Program budget includes design of a new well that is intended as backup source for the Kualapuʻu well serving the Kaunakakai area.

B. ISSUES

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- | | |
|----------|--|
| Issue 1: | Much of Molokaʻi's water delivery system infrastructure is outdated and in need of replacement. |
| Issue 2: | Potential Contaminating Activities (PCAs) have been identified that may pose a threat to Molokaʻi's water quality ¹ . |
| Issue 3: | Water uses need to be resolved collectively. |
| Issue 4: | Cyclical and seasonal water shortages have contributed to water supply shortages in recent years. |

¹ Molokai Draft Wellhead Protection Ordinance, 2013

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C. GOAL, POLICIES, AND ACTIONS

Goal **Molokaʻi will have a sufficient supply of potable and non-potable water provided in an environmentally sustainable and cost-effective manner.**

Policies

1. Recognize priority water rights of Native Hawaiian's under the Hawaiian Homes Commission Act, the State Water Code ~~and other laws.~~
2. Supply water in sufficient quantities to meet the community's needs.
3. Support the provision of adequately priced irrigation water to agricultural lands.
4. Ensure safe, efficient and reliable island-wide water systems through protection, improvement, replacement, and enhancement of the existing water supply and development of new water sources.
5. Encourage CWRM to update Molokaʻi's sustainable yield figures and establish maximum withdrawal values.
6. Encourage water resource conservation.
7. Encourage use of alternative water sources such as dual line water supply and recycled water distribution systems.
8. Support public and quasi-public partnerships to protect and restore the island's watersheds and maximize aquifer recharge.
9. Support better management and oversight of water withdrawal to ensure sustainable yields.
10. Incorporate credible local knowledge and advice on water resource issues as appropriate per the CWRM and DOH authority.
- ~~10.~~ 11. Support the completion of an agricultural master plan.

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1 Actions

Table 8.1 Infrastructure - Water			
No.	Action	Lead County Agency	Partners
8.1.01	Complete an Agriculture Master Plan that ties agriculture production areas and uses to reliable, cost effective water sources.	OED	DOA, DWS UH CTAHR Farmers
8.1.01 2	Support the development of a Moloka'i Water Use and Development Plan (WUDP) that is consistent with the goals, policies and implementation strategy of the Moloka'i Community Plan.	DWS	DHHL, DOA Private Water Co's
8.1.02 3	Implement recommendations from the 2013 <i>Update of the Hawaii Water Reuse Survey and Report</i> .	DEM	DLNR, DOH CWRM
8.1.03 4	Promote the DWS water conservation programs.	DWS	
8.1.04 5	Develop, adopt and implement a wellhead protection strategy and ordinance for County water distribution systems.	DWS	DOH
8.1.05 6	Encourage <u>all water purveyors</u> the DWS and DHHL to work together to address future water demand and supply issues.	DWS	DHHL, CWRM <u>Other water purveyors</u>
8.1.06 7	Explore the possibility of requiring new developments with privately owned public water systems to meet DWS engineering standards.	DWS	
8.1.07 8	Explore the possibility of DWS taking over Molokai Ranch water systems.	DWS	Molokai Ranch
8.1.08	<u>Encourage the acquisition of USGS stream gauges be placed in Moloka'i's important streams.</u>	<u>DWS</u>	<u>USGS, Moloka'i Watershed Partnerships</u>
8.1.09	<u>Develop improved water transmission and/or storage systems to provide better fire protection.</u>	<u>DWS</u>	<u>DHHL, Kawela Plantation, Dept. of Agriculture, Moloka'i Ranch</u>
8.1.10	<u>Continue to fund the watershed partnerships on Moloka'i</u>	<u>DWS</u>	<u>DLNR, OED</u>

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8.2 WASTEWATER

The Maui County Code defines wastewater as “water-carried wastes from dwellings, commercial establishments, institutions and industrial plants, and may include groundwater, surface water and storm water not intentionally admitted.” Management of wastewater is important because it helps guard the water supply from becoming contaminated, protects the public health and environment, and aids in water conservation by allowing reclaimed water to be used for non-potable water purposes. Wastewater on Molokaʻi is now managed using public and private wastewater systems, individual septic systems, and cesspools. The main issues with the island’s wastewater systems are vulnerability of the current facility to hazards and the use of the individual septic tanks and cesspools.

A. EXISTING CONDITIONS

The County of Maui Department of Environmental Management, Wastewater Division, provides wastewater service in the town of Kaunakakai and the Kualapuʻu subdivision. Wastewater collected by the Kaunakakai system is treated at the County’s Kaunakakai Wastewater Reclamation Facility (WWRF). Wastewater collected by the Kualapuʻu system goes to the private facility that is owned and operated by Molokai Properties Limited (MPL), which also treats Maunaloa Town and Kaluakoʻi as well as the Paniolo Hale and Ke Nani Kai condominium developments. There are also private wastewater treatment facilities at Wavecrest Resort, Molokai Shores, and Hotel Molokai. The remainder of the island is served by individual septic tanks and cesspools, including all schools, all major visitor accommodations, the Hoʻolehua Airport, and all development on Department of Hawaiian Home Lands (DHHL) homesteads.

Cesspools are considered substandard systems because they don’t treat wastewater, they merely dispose of it. Cesspools concentrate wastewater in one location, often in direct contact with groundwater, causing groundwater contamination. This groundwater flows into drinking water wells, streams and the ocean, harming public health and the environment. In 2014, the Department of Health (DOH) proposed revisions to its Wastewater Systems Rules that will update the regulation of cesspools in Hawaii. Proposed changes include prohibiting the installation of new cesspools and requiring connections or upgrades of existing cesspools that most affect human health and water quality within one year after the sale of property. Only cesspools that are near a public drinking water well, and those within 750 feet of the shoreline, a stream, or a wetland will be affected. There is a total of 1,442 cesspools on Molokaʻi; 505 (35%) are affected by the proposed regulations.

The Kaunakakai WWRF is located on a 23-acre shoreline property makai of Maunaloa Highway. The facility treats wastewater to R-2 standards (disinfected secondary treated recycled water with restrictions on uses and applications). The Wastewater Division has indicated that the 0.3 mgd capacity of the WWRF is currently adequate. This conclusion is supported by the State Department of Health’s decision to waive the requirement for development of a facilities plan, which is normally mandated when a facility reaches 75% of capacity. There are two County force mains

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on the island. The Kaunakakai force main was replaced in 2007 and the effluent force main is tentatively scheduled for replacement in fiscal year 2019 at an approximate cost of \$2 million². The Kaunakakai Wastewater Pump Station was upgraded in 2012; extending its useful life by 20 years. In 2009, a closed circuit TV inspection of all major sewer lines was conducted which concluded that the existing system is in very good to excellent condition.

Reclaimed water from the WWRF is utilized to a limited extent. Approximately 10,000 gallons per day (4% of total flow) are used to irrigate landscaping in the facility and roadway grassed areas. The remaining flow of roughly 240,000 gallons per day is disposed of by injection well. Expansion of water reuse to serve R-1 water to the community center, the park, and the elementary school in Kaunakakai would require a \$5 million mile-long distribution system and a new ultraviolet water purification system and retrofits costing around \$6 million.

B. ISSUES

Issue 1: Kaunakakai WWRF is located in the coastal floodplain leaving it exposed to damage from tsunamis or other dangerous high water events.

Issue 2: There are a number of Individual Wastewater Systems (IWS's) such as cess-pools and septic systems in use on the island in close proximity to ground water drinking sources [and shorelines](#).

Issue 3: Potable water resources are used for purposes such as flushing toilets and home garden irrigation.

Issue 4: Cesspools and septic systems located within the coastal zone are at risk of failure due to groundwater table rise due to sea level rise and flooding.

C. GOAL, POLICIES, AND ACTIONS

Goal Moloka'i will have reliable, efficient and environmentally sensitive wastewater services that meet future needs and maximize wastewater reuse where feasible.

Policies

1. Meet or exceed State and Federal standards for wastewater disposal or reuse where feasible.

² County of Maui, 2016 Capital Improvement Program

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2. Promote development of neighborhood-scale wastewater disposal systems in new subdivisions outside of existing service areas.
3. Promote the beneficial use of recycled wastewater where economically viable.
4. Promote economical, environmentally sensitive and innovative methods for disposal of excess treated wastewater effluent.
5. Promote location of new critical infrastructure or relocation of existing systems outside of inundation zones vulnerable to coastal hazards.
6. Promote development of new septic system upgrade standards and cesspool elimination standards for those systems at risk within the coastal zone.

Actions

Table 8.2 Infrastructure - Wastewater			
No.	Action	Lead County Agency	Partners
8.2.01	Assess the feasibility of either providing measures to protect the Kaunakakai WWTF against inundation threats or of relocating it out of the coastal floodplain.	DEM	DWS, DHHL, DOA, DOH, EPA
8.2.02 ³	Conduct a wastewater reuse study that includes identification of potential reclaimed water users, required infrastructure improvements, estimated costs, and funding sources.	DEM	DWS, DHHL, DOA, DOH
8.2.03 ⁴	Explore options and necessary code and regulation changes to allow graywater reuse systems for irrigation and toilet flushing.	DPW DSA	DEM DOH
8.2.04 ⁵	Replace the Kaunakakai effluent force main prior to the end of its useful life.	DEM	

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8.3 Stormwater Management

Molokaʻi is formed by three volcanoes: West Molokaʻi, East Molokaʻi, and the Kalaupapa Peninsula. West Molokaʻi rises to 1,400 feet in elevation and East Molokaʻi to about 5,000 feet. In the Kaunakakai watershed, the average elevation is about five feet near the coast rising to 4,200 feet in the mountains. Median annual rainfall ranges from about 10 inches on the coast to about 75 inches at the upper elevations.³

Stormwater can be viewed as a resource to manage, rather than a problem of excess water to be drained into the ocean. Low Impact Development (LID) features design techniques that attempt to maintain the natural pre-development hydrology of a site and the surrounding watershed, resulting in a more sustainable land development pattern. LID integrates road design with storm and wastewater management systems to minimize environmental impacts and to recharge groundwater when possible.

A. EXISTING CONDITIONS

Drainage problems on Molokaʻi from runoff during periodic rain and storm events have caused damage to homes and businesses for years. The resulting flooding threatens public health and safety ~~creates hazardous conditions and inconveniences~~ for residents and visitors. A combination of natural and manmade factors contribute to the problem including poorly drained soils in low-lying areas and flat terrain as well as inadequate or poorly maintained drainage systems in Kaunakakai town.

Existing drainage systems were designed to convey, divert, or retain runoff generated within the vicinity. However, many of these systems are or regionally inadequate, and many of the downstream systems (ditches and roadway culverts) are incapable of accommodating the runoff generated from developed conditions upstream. During heavy flows, water will overtop the Kaunakakai Stream crossing over Kamehameha Highway and other low lying roadways across the island resulting in severely hampered access and flooding mauka of roadways.⁴

The Kaunakakai Stream levee has adequately prevented flooding from occurring within the Kaunakakai area. However, analysis completed in March of 2014 by the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) showed that the Kaunakakai levee system does not provide a high level of protection against a 100-year flood event. FEMA has proposed revising the Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) reports. These changes could affect a number of properties in Kaunakakai. Property owners within the newly mapped high-risk areas with certain mortgages would be required to obtain flood insurance.

³ County of Maui Infrastructure Assessment Update, 2003

⁴ Maui Infrastructure Assessment Update, 2003

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B. ISSUES

- Issue 1: Storm water flows with heavy sediment loads and other pollutants ~~down~~ downhill ~~dirt roads~~ into gulches and the ocean.
- Issue 2: Localized minor flooding causes repeated areas of water ponding or mud accumulation.
- Issue 3: There is poor drainage throughout the entire island.
- Issue 4: Sheet flow travels down slope in the south shore of Moloka'i to Kapaakea which has little to no stormwater drainage mitigation.
- Issue 5: Stormwater flows that are not managed adequately may impact wastewater systems and the fringing coral reef.

C. GOAL, POLICIES, ACTIONS

Goal Surface water runoff is managed to prevent flooding and to improve water quality for both fresh and coastal waters.

Policies

1. Support improvement of the island's drainage system
2. Provide surface water management for roadways and ~~developed~~ other impacted areas.
3. Manage surface water using natural system drainage, retention, and filtration to reduce flooding and siltation of ocean waters.
4. Encourage DHHL compliance with County regulations on drainage.
5. Encourage development of an integrated and effective stormwater ~~drainage management plan system for from the Kapaakea subdivision~~ Kalamaula to Kamalo through a partnership of large landowners mauka of Kamehameha V Highway.

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1 Actions

Table 8.3 Infrastructure – Stormwater Management			
No.	Action	Lead County Agency	Partners
8.3.01	Develop a comprehensive stormwater management plan that emphasizes use of natural systems drainage where possible.	DPW Planning Dept.	DHHL HDOT
8.3.02	Build dispersion and retention facilities to address dirt road runoff.	DPW	DHHL HDOT
8.3.03	Implement the Kaunakakai Master Drainage Plan.	DPW	
8.3.04	Inspect, maintain and if necessary, repair or install new stormwater drainage swales and culverts and remove blockages from drains and channels.	DPW	DHHL
8.3.05	Prepare a GIS database which inventories existing stormwater infrastructure.	DPW	DHHL
8.3.06	Evaluate older swales and drains for current functioning and restore, if needed. Add natural drainage storage and filtration to supplement existing system.	DPW	DHHL
8.3.07	Improve or restore historic wetlands that help to mitigate the impacts from stormwater drainage systems.	DPW	DHHL

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8.4 Solid Waste

A. EXISTING CONDITIONS

Moloka'i's Integrated Solid Waste Facility (MISWF) is ~~located~~ located on at the 25 acres off Maunaloa Highway at Naiwa Landfill and Recycling Center. The facility offers recycling for scrap metals and related materials, including vehicles, drop box commodities, electronics, used motor oil, redemption containers, and green waste as well as a landfill which accepts solid waste for the entire island. The Landfill ~~accepts solid waste for the entire island and~~ receives approximately 13 ~~7~~ tons of waste each day. Metals and green waste receive 3 tons per day each with drop box commodities at one half ton per day and redemption containers at 0.5 tons per day. Permitted landfill capacity was projected to be exhausted by 2015; A approximately \$3 million was expended in 2014 to construct ~~build~~ Landfill Cell No. 4, providing additional waste disposal capacity until 2021⁹. The Landfill's Master Plan projects construction of Cell 5 in 2019 and Cell 6 in 2016.

In 2009, the Department of Environmental Management's Solid Waste Division updated ~~the~~ its county-wide Integrated Solid Waste Management Plan (ISWMP). The ISWMP provides a comprehensive blueprint for the planning and expansion of the County's solid waste management system. The ISWMP has a goal of achieving a 60% recycling of the waste stream, Moloka'i currently recycles 35% of its waste stream (the same as Maui). Although there is no curbside recycling on Moloka'i, the Recycling Center offers ~~has a~~ drop-off site containers for recyclables from ~~program that accepts~~ both residential and commercial customers for: cardboard, newspaper, glass, plastic, bi-metal containers, used motor oil, and electronics. The Moloka'i metals facility accepts scrap metals, appliances, vehicles, tires, propane tanks, and batteries during Landfill hours. Also located at the Landfill is the green waste facility which accepts, during Landfill hours, green waste for grinding and composting into windows. The processed green waste is available to the public at no charge. ~~waste. The Moloka'i Metals Facility accepts scrap metals, appliances, vehicles and other metal waste periodically on scheduled collection events. The County's 2015 Capital Improvement Program (CIP) budget includes funding for design and construction of a new recycling facility, however, the project has been postponed and will be re-evaluated in the 2017 budget.~~

B. ISSUES

-
- Issue 1: More solid waste needs to be diverted to the recycling center. Too much solid waste is being sent to landfill and the recycling level is low.
- ~~Issue 2: There are no facilities for scrapping vehicles, machinery, metal, household hazardous waste, white goods and bulky goods.~~
- Issue 3: There is a problem with illegal dumping throughout the Island.
- Issue 4: There is no legally operating junkyard on Moloka'i.

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C. GOAL, POLICIES, AND ACTIONS

Goal Moloka'i will minimize the volume of solid waste that enters the island's landfill through a comprehensive and environmentally sound approach to solid waste management.

Policies

1. Make County government operations a model for zero waste.

~~4.2. Continue to and expand upon existing public education programs and measures related to waste reduction.~~ ~~about waste reduction programs and measures.~~

~~2.3.~~ Continue to ~~s~~Support increased recycling by commercial and residential customers, including bulky, hazardous, and metal waste materials.

~~2.4.~~ Continue to ~~s~~Support the development of efficient and cost effective ways to deal with obsolete and abandoned vehicles, machinery, and appliances.

~~3.5.~~ Ensure that all solid waste and recycling facilities are landscaped and well maintained.

~~4.6.~~ Ensure that leachate from landfill sites, either expanded or new, does not degrade soil or pollute ground, surface, or coastal waters and dispose of in an environmentally sound manner.

~~5.7.~~ Support efforts to instill better education about hazardous waste disposal.

~~6.8.~~ Explore the possibility of developing a "cradle to ~~cradlegrave~~" recycling program.

~~3.9.~~ Encourage the Department of Education to expand recycling efforts at Moloka'i's schools.

~~4.10.~~ Encourage the sale and use of highly compostable flatware and food containers.

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1 Actions

Table 8.4 Infrastructure – Solid Waste			
No.	Action	Lead County Agency	Partners
8.4.01	Complete construction of a new recycling facility to avoid existing conflicts with operation of the landfill.	DEM	
8.4.0 12	Expand waste diversion and recycling programs that include appliances, metals, plastic, glass, cardboards, green-waste for compost and other recyclable materials.	DEM	Private Waste Collectors
8.4.0 23	Increase public outreach, education, and incentive programs that improve waste reduction, reuse, and recycling.	DEM	DOH
8.4.0 34	Implement the ISWMP through programs, improvements, and upgrades to the solid waste management system; execute the CIP budget <u>as funds allow.</u> in a timely manner.	DEM	DOH, Private Waste Collectors
8.4.0 45	Expand the solid waste recycling center's operating hours <u>as funding and budgets allow.</u> Develop transfer stations across the island	DEM	
8.4.0 56	<u>Explore the feasibility of locating more</u> Increase the number of public trash cans throughout the island.	DEM	
8.4.0 67	<u>Conduct a feasibility study to</u> e Explore waste-to-energy solutions.	DEM	
8.4.08	Explore the development of "take-it or leave it" dump sites.	DEM	
8.4.0 79	Develop educational signage to be located at the entry of the County recycling site.	DEM	
8.4.10	Expand recycling efforts at all Moloka'i schools.	DOE, DEM	
8.4.11	Encourage the sale and use of highly compostable flatware and food containers.	?	
8.4. 812	Explore the feasibility of having more transfer stations located throughout Moloka'i Island.	DEM	
<u>8.4.9</u>	<u>Form a partnership with Molokai NGOs, State Agencies, and DHHL to remove and recycle junk cars from Molokai.</u>	<u>DEM</u>	<u>NGOs DHHL</u>
<u>8.4.10</u>	<u>Conduct annual reviews of Solid Waste contracts to provide oversight and enforcement.</u>	<u>DEM</u>	

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8.5 Transportation

An integrated, affordable multi-modal transportation system is critical to the quality of life for Molokaʻi residents, and to support a diversified economy. Molokaʻi relies heavily on its air and sea transportation systems to transfer people, goods and services to and from the island. Most consumable goods are transported to the island via barge, making the cost of most items more expensive than on Maui or on Oʻahu. Reliance on an effective, efficient and affordable inter-island passenger transportation system is also evidenced by survey results that show 60% of residents travel off-island for health care services⁵.

A. EXISTING CONDITIONS

Air

Molokaʻi has two airports - Molokaʻi Airport and Kalaupapa Airport - although only Molokaʻi Airport is located in Maui County. Molokaʻi Airport originally opened in 1929 [as Hoʻolehua Field](#) and has two ~~general aviation~~ runways located on 288 acres on the island's central plateau. It is owned and operated by the State of Hawaii, Department of Transportation Airports Division. The facility is designated as a small commercial airport with a transport runway classification. Molokaʻi is served by [various](#) passenger air carriers ~~including Mokulele, and Ohana by Hawaiian~~ and air cargo carriers. ~~including Fed-Ex~~. In 2013, Molokaʻi Airport had a total of 34,518 aircraft arrivals and departures, which is 4% of the statewide total number of airport operations.⁶

The *Molokaʻi Airport Master Plan* was prepared in 1999 by the Hawaii Department of Transportation (HDOT) Airports Division. To accommodate the projected demands through the year 2020, recommended upgrades include extending and improving the airfield runway and taxiway, building a new terminal building, and improving parking and terminal roadways.

Sea

Molokaʻi has a mix of harbor facilities. Kaunakakai Harbor on the south side of the island is the primary harbor for the island. It includes 2 berths, 29 moorings, 1 ramp, and 1 pier. Hale o lono, located 7 miles ~~southwest of~~ [Kaunakakai](#) ~~Cape Halawa~~, is a ~~ruined~~ wharf [in disrepair](#) with 1.5 acres of protected anchorage for day and overnight recreation. Kamalo Wharf on the south shore is considered a temporary-use facility rather than a permanent mooring area.

The Molokaʻi Ferry is a privately owned operation that offers one daily round trip passenger service traveling back and forth between Lahaina on Maui and Kaunakakai. In July of 2015, the owner sought PUC approval to operate on an “as needed” basis due to declining passenger numbers attributed to competition from low priced fares.

There is no longer a direct freight ferry service connection between Molokaʻi and Maui, which creates logistical problems for producers of perishable goods. Also, the current Young Brother

⁵ *Hawaii Statewide Transportation Plan – Report on Public Opinion Poll*, November 2010

⁶ Source: Hawaii State Department of Transportation, Airports Division

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freight ~~barge~~ ferry schedule makes it difficult to ship perishable goods from Honolulu, since goods departing there on the Sunday night ferry are only accepted on Friday until 11:00 am. Products originating or arriving outside of Hawaii first arrive in Oahu then move on to Molokaʻi. The additional leg of travel increases Molokaʻi shipping costs and shipping times, which can affect spoilage rates for agricultural products.

Land

Most roads on Molokaʻi are publicly owned and managed; the County is responsible for local roads and the State for Kamehameha V Highway (Hwy 450), Maunaloa Highway (Hwy 460) and Kalae Highway (Hwy 470). Traffic volumes on Molokaʻi are generally low and growth projections do not anticipate much of a change in the future. The *Molokaʻi Long-Range Land Transportation Plan* was prepared by HDOT in 1997. The goal of the plan is to provide a safe and efficient land transportation system through the year 2020.

The 1997 HDOT plan recommended upgrades to address several issues such as improving drainages, constructing bridges, and widening roadways at a number of locations around the island. There is significant shoreline erosion along Kamehameha V Highway on the southeast side of the island. Reinforcing, protecting, or relocating these segments may be necessary in order to maintain safety and reliable operations.

Molokaʻi is largely rural and has few pedestrian facilities. The *Statewide Pedestrian Master Plan* (HDOT, 2013) considers persons living below the poverty level, the elderly, and students to be Pedestrian-Oriented Populations. Molokaʻi has a higher than average concentration of persons living below the poverty level. The Pedestrian Plan recommended improvements to Farrington Avenue near Molokai High School due to concerns over student safety.

The island does not currently have a bikeway system; however, bicycle improvements have been planned along nearly 60 miles of roadway on Molokaʻi.⁷ While there is no formal public transit system on the island, the non-profit social services agency Maui Economic Opportunity (MEO) operates a rural shuttle service for youth, elderly, disabled and the general public. The MEO shuttle service is funded by an annual grant from the Maui County DOT. The MEO shuttle serves three service areas: Molokaʻi East, Molokaʻi West, and Molokaʻi Central. Private commercial taxi and shuttle services are also available.

In 2009, the Hawaii legislature amended state statutes to require the Hawaii Department of Transportation (HDOT) and Hawaii's four county transportation ~~at~~(or public works) departments to adopt 'Complete Streets' policies that accommodate all users of roadways, including pedestrians, bicyclists, transit users, motorists and persons of all ages and abilities. Complete Streets is a relatively new approach to street and transportation design which aims to accommodate all users of roadways and rights of way. Maui County has a Complete Streets policy and consideration of this policy should be made for the design of Molokaʻi's roadways.

⁷ *Bike Plan Hawaii*, Hawaii Department of Transportation 2003

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Future Multi-Modal Transportation System

The island's multi-modal transportation system allows people to use a variety of transportation modes, including walking, biking, and other mobility devices (e.g., wheelchairs), as well as transit where possible. The system will:

- Include [where applicable](#), a variety of facilities such as Complete Streets,⁸ [public parking](#), roads and highways that accommodate multiple users including freight, trucks, cars, transit vehicles, bicycles, and pedestrians.
- Be designed and built to address the needs of people of all abilities.
- Provide safe and functional linkages to connect the island's population centers and destinations.
- Enhance and be compatible with the rural character of Molokai.
- Provide cost-effective connections to air and sea transportation facilities at the interisland transportation hubs at Kaunakakai Harbor and Moloka'i Airport.

Roads, Highways, and Major Thoroughfares

- The existing road and highway network will continue to be the foundation for transportation on the island. The current transportation plan for the island's major roads does not propose new highways so the focus in the future will be on improving existing highways.
- Where possible, streets and highways should be designed as "Complete Streets". In this approach, streets are designed to consider the needs of all users such as motorists, pedestrians, bicyclists, and transit riders. Priorities for these modes and functions will vary depending on the specific segment and/or conditions.
- Streets and roads within Molokai's small towns will be improved to meet the recommendations in the *Business Country Town Design Guidelines*⁹. An update of this document is recommended as Action 7.01.
- Specific improvements to State of Hawaii highways are listed in the 2014 Statewide Federal-Aid Highways 2035 Transportation Plan.¹⁰

Transit Corridors

- Until demand warrants a public transportation system, MEO will continue to provide bus service for residents and visitors between the island's population centers and transportation hubs.

⁸ [Complete Streets are designed and operated to enable safe access for all users. People of all ages and abilities are able to safely move along and across streets in a community, regardless of how they are traveling.](#)

⁹ [County of Maui Department of Planning. \(July 1993\). *Design Guidelines for Country Town Business Districts: Molokai*.](#)

¹⁰ [State of Hawaii Department of Transportation/Highways Division. \(July 2014\) *Federal Aid Highways 2035 Transportation Plan*.](#)

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- Supporting facilities such as bus stops and park-and-rides for the existing MEO service and future transit will be in locations that are conveniently accessed, are safe, and offer protection from the weather.

Bicycle Facilities

- Bicycle paths will be provided along all major highways, per the recommendations of the State's Bike Plan Hawaii (2003)¹¹
- Bicycle facilities within Molokai's small towns are provided to accommodate local bicycle use and to support the island-wide bicycle system. Bike paths and bike lanes in these areas connect residential areas with shopping, schools, and other local attractions.
- Bicycle improvements within the small towns will be coordinated with pedestrian facilities as part of the multi-modal system for alternative transportation.

Pedestrian Facilities

- Pedestrian facilities to improve safety and to promote and accommodate walking within Molokai's small towns will be provided.
- Sidewalks, [public parking](#), and other pedestrian facilities will connect residential areas with shopping, schools, and other local attractions.
- Pedestrian improvements within the small towns will be coordinated with bicycle facilities as part of a comprehensive plan for alternative transportation.

B. ISSUES

- Issue 1: High shipping costs and limited options place Moloka'i businesses at a competitive disadvantage.
- Issue 2: The current [barge ferry](#) schedule makes it difficult to ship perishable goods between islands or to the mainland. There is a lack of options to bring in goods and services.
- Issue 3: There is significant shoreline erosion along Kamehameha V Highway on the southeast side of the island.
- Issue 4: The lack of bike paths and sidewalks is a concern.
- Issue 5: Moloka'i has only one recreational boat ramp facility located in Kaunakakai.
- Issue [67](#): There is no inter-island public ferry system.
- Issue [78](#): There is a lack of options to bring in goods and services.

¹¹ [State of Hawaii Department of Transportation/Highways Division. \(2003\) Bike Plan Hawaii: A State of Hawaii Master Plan](#)

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Issue ~~8~~⁹: Some of Molokaʻi's existing private roadways are not compliant with Maui County standards.

C. GOAL, POLICIES, ACTIONS

TRANSPORTATION

Goal Molokaʻi will have an integrated multi-modal transportation system that supports a diversified economy and meets the needs of residents and visitors while respecting the island's rural character.

Policies

1. Support the expansion of air services to Molokaʻi as needed.
- ~~2. Support implementation of the 1999 Airport Master Plan that anticipates extending and improving the airfield runway and taxiway and a new terminal building with onsite parking and terminal roadways.~~
- ~~3~~². Encourage rapid and cost effective transport of Molokaʻi's agricultural products to Maui and Oahu markets.
- ~~4~~³. Explore options for a direct barge service or a passenger ferry that can carry goods from Molokaʻi to Maui.
- ~~5~~⁴. Support improvements to Kaunakakai Harbor.
- ~~6~~⁵. Support the improvement and, if warranted, expansion of public or government run ferry service from Molokaʻi to Maui.
- ~~7~~⁶. Maintain the rural character of Molokaʻi's road system while accommodating multiple modes of transportation – including transit, freight vehicles, automobiles, pedestrians, and bicycles.
- ~~8~~⁷. Support improving access to East Molokaʻi during wet weather events by providing bridges at sites of flooding on Kamehameha V Highway.
- ~~9~~⁸. Support safe pedestrian routes and bike paths along highways and arterials in accordance with the County's *Complete Streets Policy*.
- ~~10~~⁹. Support continued coordination between the County DOT and MEO to provide rural shuttle services that meet the needs of youth, elderly, disabled, and the general public.
- ~~11~~¹⁰. Support Molokai's existing and future private roadways achieving compliance to Maui County standards.
- ~~12~~¹¹. Support completion of a feasibility study to bBuild a new boat ramp in East Molokaʻi designed to meet the needs of the community.
- ~~13~~¹². Bikeways and sidewalks should be installed, connected and or improved in the urban core and immediate outlying areas.

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~~14.13.~~ Encourage the State to provide pertinent signage along high-ways for all Moloka'i ports-of-entry.

~~15.14.~~ Encourage the State to maintain Hale O Lono Harbor and en-sure public access.

~~16.15.~~ Encourage the review and provide relevant applicability of state transportation plans such as: 1999 Airport Master Plan, 2003 Bike Plan for Hawaii, and Moloka'i's Long Range Land Transportation Plan.

Actions

Table 8.5 Infrastructure - Transportation			
No.	Action	Lead County Agency	Partners
8.5.01	Work with State DOT to encourage that the airport and air services meet the needs of Moloka'i's residents, visitors and businesses.	OED	Planning Dept. HDOT
8.5.02	Support the continued air services between topside Moloka'i and Kalaupapa.	OED	Planning Dept. HDOT
8.5.03	Encourage the State to implement HDOT's 2015 Molokai Airport Master Plan.	OED	HDOT
8.5.03 4	Identify challenges and propose solutions to transporting Moloka'i agricultural products to Maui and Oahu markets.	OED	Planning Dept. HDOT
8.5.04 5	Advocate for increased barge and ferry service to and from Molo-ka'i.	OED	HDOT
8.5.05 6	Identify harbor and airport improvements designed to further sup-port the agricultural industry.	OED	Planning Dept. HDOT
8.5.07	Develop Hale O Lono Harbor for recreational purposes and ensure public access, while maintaining its ability to provide back up com-mercial capacity to Kaunakakai.	DPW	HDOT
8.5.06 8	Plan for an integrated multi-modal transportation system with com-plete streets that serve automotive, public transit, bicycle, pedestri-an, and other land transportation modes.	DPW	HDOT Planning Dept.
8.5.07 9	Develop Moloka'i specific roadway standards and guidelines con-sistent with BCT guidelines for rural roads.	DPW	Planning Dept.
8.5.10	Encourage the State to implement HDOT's 2003 Bike Plan Hawaii.	DPW	HDOT
8.5.11	Encourage the State to update and implement HDOT's 1997 Molo-ka'i Long Range Land Transportation Plan.	DPW	HDOT
8.5.7 12	Develop and implement a trail, greenway and open space access plan that utilizes old agriculture roads and trails where appropriate.	Planning Dept.	Parks & Recreation
8.5.8 13	Integrate a parking study with parking mitigation measures appro-priate for Moloka'i into a Kaunakakai Revitalization and Beautifica-tion Plan. Explore the concept of centralized parking in Kaunakakai Town and utilize areas such as the Old Electric Park.	Planning Dept.	DPW

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8.5.9 4	Evaluate existing MEO transportation services to identify possible improvements to routes and pick-up and drop-off locations <u>and other supporting facilities</u> .		MEO
8.5.10 17	Support additional access routes located around Kaunakakai to facilitate access to and from town.	DPW	DOT
8.5.11 18	Explore the possibility of the County acquiring privately owned roads on Moloka'i.	DPW	
8.5.12	<u>Support the completion of a feasibility study to develop a boat ramp in East Moloka'i to meet the community's needs.</u>	<u>Parks & Recreation</u>	
8.5.13	<u>Encourage a bike share program for Moloka'i.</u>	<u>DPW</u>	
8.5.14	<u>Encourage the continued practice of no-fee parking at the Moloka'i airport.</u>	<u>OED</u>	<u>HDOT</u>

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8.6 Energy

The cost to produce power in Hawai'i is higher than on the U.S. mainland for a number of reasons including no economies of scale in Hawai'i's market due to the relatively small population base, and the use of imported crude oil to fuel the power generators that makes Hawai'i vulnerable to global crude oil price fluctuations.

A. EXISTING CONDITIONS

In 2013, MECO had 12 megawatts of diesel-generating capacity that provided electricity to 2,649 residential customers and 562 commercial customers on Moloka'i. The average residential electricity rate on Moloka'i was 46 cents per kilowatt hour (kWh); the rate was 37 cents per kWh on Maui; and it was 12 cents per kWh nationally. In 2012, MECO lost about \$200,000 subsidizing Moloka'i's electricity rates¹². There is potential for the island to generate much of its own electricity if its energy infrastructure is improved. Per PUC rules, the electrical grid threshold is set to no more than 15% input from small scale individual wind/solar power systems in order to avoid compromising service to other customers on the same circuit. In order to accommodate more new small scale wind and solar power sources, existing electrical distribution controls will need to be upgraded with smart grid technology to better manage these intermittent sources of electricity.

The State of Hawai'i and the US Department of Energy launched the Hawai'i Clean Energy Initiative in 2008. In 2015, approximately 21% of Hawai'i's electricity was generated from renewable resources; primarily from bioenergy, wind, geothermal, and rapidly expanding solar. The electric utility renewable energy portfolio goals were updated in 2015 to 30 percent by December 31, 2020, 70 percent by December 31, 2040, and 100 percent by December 31, 2045.

Moloka'i has more than enough renewable energy resource potential to meet electrical demand.⁶ It's estimated that four 1.5-megawatt wind turbines could meet half the island's electrical use and Moloka'i also has sites that are suitable for utility-scale solar and biomass projects. In 2013, Princeton Energy Group announced plans to build a 20-megawatt solar photovoltaic project on an 80-acre parcel owned by Molokai Ranch. [The project will be built out in three phases: phase 1 will meet 30% of the demand.](#) The project would be built out in phases and could eventually meet 80% to 90% of Moloka'i's electrical energy needs.

¹² Princeton Energy Group, 2013 Ikehu Moloka'i Presentation

⁶ Hawaii Energy Fast Facts, November 2014; Hawaii State Energy Office · energy.hawaii.gov

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B. ISSUES

- Issue 1: Dependency on fossil fuels for electricity generation results in a lack of control over costs and supply chain security. Accordingly, Molokaʻi has some of the highest electricity rates in the state and in the country.
- Issues 2: Inability of the island's existing power grid to effectively handle intermittent energy sources such as solar and wind power.

C. GOAL, POLICIES, AND ACTIONS

Goal Molokaʻi will meet its energy needs through development of local clean renewable energy sources and implementation of energy efficiency and conservation measures.

Policies

1. Support accelerating development of alternative energy sources to help reduce dependency on oil and other fossil fuels.
2. Support increased use of environmentally friendly alternative fuels on Molokaʻi without degrading the environment.
3. Support programs that provide incentives to use more efficient vehicles, appliances, lighting, and other energy consuming devices.
4. Encourage County services and facilities to be energy efficient and to utilize renewable energy where possible.
5. Ensure that main utility transmission lines are robust and resilient enough to withstand severe storm effects.
6. Promote the under-grounding of utilities in new areas of development and in existing areas where feasible.
7. Support development of micro-grids for critical infrastructure and key resources.
8. Support alternative ownership options for Maui County's electric [utilities to](#) provide more affordable and clean energy.

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- 1 9. Encourage amending the Maui County Building code that would recommend
- 2 the use of energy conservation devices in both new construction and renova-
- 3 tions.
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Actions

Table 8.6 Infrastructure - Energy			
No.	Action	Lead County Agency	Partners
8.6.01	Develop a Diversified Energy Strategy for Moloka'i that examines locations for large and small scale renewable energy systems.	Energy Office	State Energy Office, MECO
8.6.02	Create a smart grid that would allow for integration of additional renewable energy sources.	Energy Office	MECO
8.6.03	Provide loan programs and tax incentives to encourage individuals and businesses to install renewable energy systems and to use energy saving devices.	Energy Office	State Energy Office, MECO
8.6.04	Develop an ordinance that would require all new County buildings and facilities to achieve specific energy efficiency standards such as LEED certification.	Energy Office	State Energy Office
8.6.05	Encourage the use of electric vehicles. Support the installation of Photovoltaic (PV) charging stations throughout the Island.	Energy Office	State Energy Office

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8.7 Telecommunications

A. EXISTING CONDITIONS

The *Maui County General Plan 2030 Telecommunications Assessment* (January 2007) found that wireless telephone and internet service deficiencies exist on Molokaʻi due to the dispersed nature of development. The study found that urbanized areas had moderate service coverage while the non-urbanized areas had limited coverage. Another assessment conducted in 2012 by the State of Hawaii Department of Commerce and Consumer Affairs indicated that Molokaʻi residents were dissatisfied with cable and internet service and pricing.¹³ At that time, system performance was limited since it was provided by microwave feed from Lahaina rather than by undersea fiber optic cable, even though much of the on-island distribution was by fiber cable. However, in 2013 Oceanic successfully negotiated a lease of existing undersea fiber optic cable and since then, download speeds reportedly have improved¹⁴.

B. ISSUES

Issue 1: Limited access to high speed internet and telecommunications services presents challenges for education, health care, residents, and businesses.

Issue 2: There are numerous dead spots on Molokaʻi ~~the island~~ where ~~for~~ cellular/mobile telephone service is nominal or non-existent.

C. GOAL, POLICIES, AND ACTIONS

Goal Molokaʻi will have a robust, resilient, and reliable telecommunications network.

Policies:

1. Encourage and support the expansion of the mobile cellular network.
2. Encourage and support the expansion of high speed internet services.
3. Ensure that all schools are provided high speed internet services.

¹³ *Community Ascertainment and Related Activities, Results as of 5/30/13*, State of Hawaii Department of Commerce and Consumer Affairs

¹⁴ "Oceanic Internet Upgrade", The Molokaʻi Dispatch, July 22nd 2013, <http://themolokaaidispatch.com/oceanic-internet-upgrade/>

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4. Encourage increased telecommuting activities for residents.

5. Encourage cell tower installation and backup generators to be located out of special flood hazard areas and tsunami inundation zones.

5.6. Require telecommunications providers to expand the coverage and provide more reliable service throughout the island.

Actions

Table 8.7 Infrastructure - Telecommunications			
No.	Action	Lead County Agency	Partners
8.7.01	Work with telecommunications providers to expand the coverage and provide more reliable service <u>throughout the island</u> .	OED	<u>All service providers</u> Oceanic, Verizon
8.7.02	Work with internet providers to expand high speed internet service throughout the island.	OED	<u>All service providers</u> Oceanic, Verizon
8.7.03	Provide high speed internet at all county meeting facilities.	Parks Dept.	<u>All service providers</u> Oceanic, Verizon
<u>8.7.04</u>	<u>Encourage more provision of wireless "hotspots" in Moloka'i's Country Towns.</u>		<u>All service providers</u>

9 | PUBLIC FACILITIES AND SERVICES

9.1 PARKS AND RECREATION

The County of Maui Department of Parks and Recreation is responsible for the development, operation, and maintenance of county park facilities. The State Department of Land and Natural Resources (DLNR) has jurisdiction over state beach parks, natural area reserves and other managed lands. The National Park Service manages Kalaupapa.

Moloka'i's developed parks and open spaces include tot lots, sports courts, a gymnasium, pool and athletic fields. The facilities range in scale from just under an acre to over two hundred acres.

One of the most significant issues facing the county's park system on Moloka'i is the lack of an overall plan for parks and recreation facilities. It will be difficult to meet the needs of current and future residents without a master plan that documents the island's needs and provides a direction for planning, maintenance, and development. Another notable issue that was raised at the community plan workshops in 2010 is public access to shoreline areas.

A. EXISTING CONDITIONS

Moloka'i currently has 14 County parks and facilities, including the Cooke Memorial Pool, three Community Centers, six community parks, and five neighborhood parks. Despite an abundance of park space, most parks do not provide park amenities that are typically found in developed parks. This may be because many existing parks are designed to serve beach park requirements rather than community needs for recreation. Maui County also manages the use of Community Centers which are available to the public for meetings, social gatherings, or other events. The Community Centers are public and ADA accessible.

Park and recreation facilities on the East End's south shore include two public access rights-of way to the beach, three day parks, an athletic field with a community center, and two access trails to public hunting areas. There are a number of privately owned beach accesses that are in general public use that do not qualify as publicly managed facilities.

Despite miles of shoreline on the East End, public access with adequate facilities is limited. Even though there is relatively low population in the East End, island residents, as well as a growing numbers of tourists use this area for coastal recreation. The only public boat ramp is over ten miles away at the Kaunakakai Wharf.

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Figure 9.1 Moloka'i Public Parks				
NAME OF PARK	LOCATION	OWNERSHIP	PARK TYPE	SIZE (acres)
Pala'au	Central	State	State Park	233.70
Cooke Memorial Pool	Kaunakakai	County	Community Park	.50
Duke Maliu Regional Park	Central	County	Community Park	10.00
Halawa Park	East end	County	Neighborhood Park	1.00
Kakahāia Park	Central	County	Neighborhood Park	0.80
Kaunakakai Ball Park	Kaunakakai	County	Community Park	6.47
Kaunakakai Lighthouse/Malama Park	Kaunakakai	County	Special Area	3.35
Kilohana Community Center	Kaunakakai	County	Community Park/Community Center	7.60
Kualapuu Park & Community Center	Central	County	Community Park/Community Center	6.77
Maunaloa Subdivision Park	West end	County	Neighborhood Park	2.00
Maunaloa Community Center	West end	County	Neighborhood Park/Community Center	3.00
Mitchel Pauole Community Center	Kaunakakai	County	Community Center	8.78
One Ali'i Park		County	County Park	11.00
Papohaku Beach Park	West end	County	Beach Park	10.40
Pu'u Hauole Park	Kaunakakai	County	Neighborhood Park	1.30
TOTAL ACRES				306.67

Source: "Public Facilities Assessment Update County of Maui." March 9, 2007. R.M. Towill Corporation, Honolulu, Hawaii

One of the most critical issues is that the Department of Parks and Recreation does not have a comprehensive park and recreational facilities plan. Without such a plan, it is difficult to prioritize projects or to initiate improvements in a systematic way. The Parks Department typically initiates development projects on the basis of its annual six-year capital program budget. Development of a parks and recreation master plan would identify community needs and priorities, provide a vision for the future, and produce a capital improvement program that is based on a rational assessment of long-term community needs.

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The State Department of Land and Natural Resources (DLNR) manages approximately one million acres of land, which can be divided into roughly three categories: (a) land that the public is actively invited to recreate in such as State parks; (b) land that the public is not actively invited to recreate in, but openly utilizes such as forestry area reserves and unencumbered State land; and (c) land that the public does not enter such as inaccessible watershed areas. Through the Na Ala Hele trail and access system, the State makes many of its conservation lands available to residents and visitors. These trails invite the public to enjoy some of the most intimate and pristine places of the County. There is one trail on Molokaʻi, four on Lānaʻi and 16 trails on Maui.

B. ISSUES

- Issue 1: It is difficult to plan for future park and recreation improvements because there is no current assessment of community needs.
- Issue 2: There is a need for more community involvement such as coaches and volunteers to support recreational youth programs.
- Issue 3: Some of Molokaʻi's parks and recreational facilities are in disrepair and in need of regular maintenance and improvements to meet the community's needs. Currently there are only two staff positions responsible for maintenance and repair of all of Molokaʻi's facilities and parks.
- Issue 4: Molokaʻi has a wealth of open spaces, trails, parks, and cultural sites but access to some sites is difficult or blocked.
- Issue 5: Malama Park has the potential to be a key cultural and community place but is now in disrepair.
- Issue 6: There is no boat ramp access in East Molokai.

C. GOAL, POLICIES, ACTIONS

Goal **Molokaʻi will have a full range of public facilities, recreational opportunities, and programs that meet the current and future needs of the island's residents and visitors.**

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Policies

1. Support a systematic approach to planning and improving the island's parks, facilities, and recreation programs.
2. Support expanding access to recreational opportunities and community facilities to meet the present and future needs of residents of all ages and physical abilities.
3. Support improving the quality and adequacy of community facilities to ensure that they are clean and well maintained, and that there is an adequate supply of public restrooms in convenient locations.
4. Require the dedication of land and development of usable park sites as part of the approval of development of new residential and mixed-use areas.
5. Ensure access to the island's parks, trail systems, open spaces, and cultural sites where appropriate and with government agencies working with private landowners to address issues of liability.
6. Support the improvement for recreational vessel boat ramp launch infrastructure as needed by the community.
7. Support improvements to Malama Park.
8. Support public-private partnerships to provide park access and facilities.
9. Support and expand the State Na Ala Hele trail system, including a coastal trail system.

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Actions

Table 9.1 Public Facilities and Services - Parks and Recreation			
No.	Action	Lead County Agency	Partners
9.1.01	Develop, adopt and regularly update a parks and recreation master plan that incorporates public facilities, parks, other recreational opportunities and a financial component.	Parks & Recreation	
9.1.02 5	Amend development regulations to ensure the construction of adequate parking with pathways near public shoreline access points.	Planning	
9.1.03 6	Adopt a beach/mountain access dedication ordinance pursuant to using Transfer Development Rights addressed in HRS Chapter 46 to improve access along the shoreline and mountains.	Planning	
9.1.04 7	Develop a master plan that identifies improvements to Mitchell Paule <u>Duke Maliu</u> Regional Park.	Parks & Recreation	
9.1.05 8	Provide shade for One Ali'i Park's playground area.	Parks & Recreation	
9.1.06 40	Consider repurposing the Kilohana Park for a potential site to relocate and build a new Puko'o Fire Station.	Parks & Recreation	MFD
9.1.07 44	Coordinate planning, design, and construction of a new Kaunakakai Gymnasium and Athletic building that meets Moloka'i's unique sports needs and serves as a hardened civil defense community shelter for disasters.	Parks & Recreation	Civil Defense
9.1.08 42	Explore land acquisition and development of park facilities at Kumimi Beach.	Parks & Recreation	landowners
9.1.09 43	Explore state or county land acquisition and development of park facilities at Kamalo and Dixie's .	Parks & Recreation	landowners
9.1.10	<u>Explore state or county land acquisition and development of park facilities at Dixie's.</u>	<u>Parks & Recreation</u>	<u>landowners</u>
9.1.11	<u>Work with County, State, and Federal agencies and the community to resolve Malama Park issues.</u>	<u>Parks & Recreation</u>	<u>Feds, State, Community, DHHL</u>

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9.2 POLICE

A. EXISTING CONDITIONS

The Maui County Department of Police has only one main police station located in Kaunakaka'i. The entire island of Moloka'i comprises Maui Police Department District V. This police district is served by the Moloka'i Station, with 29 budgeted uniformed patrol officers and an estimated share of nine investigative officers. The district is divided into two motorized beats and each beat is patrolled by a single officer.

Based on population alone, the Moloka'i Community Plan region's current need is estimated at approximately nine officers. However, given the remoteness of this island and large area requiring police coverage, it is necessary to field more officers to ensure adequate police service. The current number of officers slightly exceeds the estimate of need in the *Public Facilities Assessment* published in 2007. The district has a projected need for 13 additional patrol officers by the year 2035. Currently, the greatest challenge for the Police Department is recruiting new officers.

The Moloka'i Station received 6,751 calls in 2013 as compared to 6,854 in 2012. There were 720 criminal arrests during the year. The district issued a total of 1,123 citations in 2013 as compared to 1,223 in 2012.¹ Animal control is aided by the Moloka'i Humane ~~Society and the Maui County Animal Welfare Coalition~~, a non-profit community services organization that provides ~~shelter~~, spay/neuter services, transport of animals, ~~adoptions, sustenance~~, and humane education.

B. ISSUES

Issue 1: There is a lack of police response capabilities and facilities in the outer reaches of Moloka'i's east and west ends.

Issue 2: More police presence in the form of bicycle or foot patrol is needed in Kaunakaka'i.

Issue 3: Substance abuse and domestic violence is a continuing problem on the island.

Issue 4: The existing police station is presently located in a special flood hazard area and tsunami evacuation zone. The current police station location also necessitates emergency response through and in close proximity to congested areas such as elementary schools, areas of heavily used parks and recreation facilities, and Kaunakakai Town.

Issue 5: There is no animal holding facility on Moloka'i.

¹ Maui Police Department Annual Report 2013, p 25

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C. GOAL, POLICIES, ACTIONS

Goal **An effective and efficient police force to help maintain a safe, peaceful and friendly community.**

Policies

1. Support an expanded police presence in the east and west ends of Moloka'i.
2. Encourage the development, adoption and implementation of programs that address substance abuse.
3. Encourage maximizing the island's police resources to properly enforce substance abuse laws.
4. Support the placement of bicycle and/or foot patrol officers in Kaunakaka'i as needed.
5. Encourage involvement on the Police Commission by a Moloka'i representative.
6. Support the maintenance and development of Police facilities on Moloka'i that meet the Maui Police Department's and community's needs.
7. Encourage police involvement in the community.
8. Encourage and support the recruitment of police officers through the junior police officer program.
9. Support the provision of Moloka'i community and cultural sensitivity training for new police recruits and transferred personnel. ~~Provide training for new police recruits.~~
10. Encourage State hunter safety courses.
11. Encourage the establishment of an animal holding facility for Moloka'i.

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1 Actions

2

Table 9.2 Public Facilities and Services - Police			
No.	Action	Lead County Agency	Partners
9.2.01	Coordinate with community organizations in their prevention and treatment efforts to reduce substance use and abuse.	Maui Police Department	Community Organizations
9.2.02	Continue working cooperatively with the Prosecuting Attorney and the Drug Enforcement Agency (DEA) to enforce substance abuse laws.	Maui Police Department	Prosecuting Attorney DEA
9.2.03	Coordinate land acquisition, planning, design and construction of a new Moloka'i Police Station at a location that meets the unique needs of the Maui Police Department for Moloka'i, out of the special flood hazard area and tsunami evacuation zone and promotes practical and safe emergency response for the entire Moloka'i community.	Maui Police Department	
9.2.04	Collaborate with community organizations and other appropriate groups to provide Moloka'i community and cultural sensitivity training for new recruits and transferred personnel	Maui Police Department	Community Organizations

9.3 FIRE AND PUBLIC SAFETY

An adequate fire protection service within close proximity to all populated areas is necessary to protect life and property. The mission of the Maui County Department of Fire and Public Safety also known as the Maui Fire Department (MFD) is "to protect and preserve life, environment, and property." Its officers and equipment are used to fight and control fires, perform emergency rescue services, and provide community education on fire safety. MFD is Maui County's first responder to public safety incidents and is often involved with land and water rescue.

A. EXISTING CONDITIONS

Three fire stations serve the Island. The newly constructed Kaunakaka'i Station replaced the existing facility in 2010 and is located on Alanui Ka Imi Ike Street in Kaunakakai and is responsible for the Kaunakakai area. The Ho'olehua Station covers Ho'olehua, Kaulapu'u, Kalae, Kaluako'i, and Maunaloa. The Puko'o Station is located on Kamehameha V Highway, at the east end of the island and covers from Kamalo to Halawa Valley. The Puko'o Fire Station is currently a sub-station of Kaunakakai with only two personnel assigned per shift, which is below national and Maui County standards for minimum fire company staffing standards.

Figure 9.3 Fire Protection Facilities

Name	Type	2005 Population Served*
Kaunakakai Fire Station #4	Tanker, Engine	3,564
Ho'olehua Fire Station #9	Engine	1,782
Puko'o Fire Station #12	Engine	1,782

Source: *Public Facilities Assessment Update County of Maui 2007*

*Note: population split is 50% to Kaunakakai, 25% to Ho'olehua, 25% to Puko'o

MFD is presently completing a "Standards of Cover" report that is expected to be finished summer 2015. This report will assess the adequacy of the current level of fire service coverage. This is the first time that such a report has been compiled. This research will attempt to address the expectations of the citizens, MFD and County Government in terms of level of fire service needed. Other factors critical to providing the adequate level of fire service is the level of funding available.

With regard to fire service for the East End, MFD has a memorandum of understanding with the State of Hawaii to lease the current parcel where the Puko'o Fire Station is located. The facility is over 80 years old, in disrepair and sits in a tsunami and hurricane inundation zone.

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B. ISSUES

- Issue 1: A large number of residential areas of Moloka'i are not covered by existing fire stations.
- Issue 2: The southern and southwestern facing slopes of the entire island of Moloka'i are at high risk for fire, especially in developed areas.
- Issue 3: There would be a lack of fire coverage on the West End if future growth occurs.
- Issue 4: Staffing at the Puko'o Fire Station is below national and Maui County minimum standards.
- Issue 5: The existing Puko'o Fire Station is presently located in a flood and tsunami inundation zone.

C. GOAL, POLICIES, ACTIONS

Goal Protect life, property and the environment by providing effective and efficient fire protection and rescue services for the island of Moloka'i.

Policies

1. Evaluate the results of the 2015 "Standards of Cover" report due to be completed summer 2015. Address fire service needs as indicated in the report.
2. Evaluate options to relocate the Puko'o Fire Station out of the tsunami and hurricane inundation zone and in a manner that meets fire services as needed on the east end.
3. Encourage programs and projects that will address fire risk [in affected communities](#). ~~above Manila Ranch Camp.~~
4. Support locating fire, safety, emergency and ocean rescue services on the West End as population increases warrant.

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5. Support the maintenance and development of Fire facilities on Moloka'i that meet the Maui Fire Department's and community's needs.
6. Ensure that Maui Fire Department minimum staffing levels for Molokai meet the same national and Maui County minimum staffing levels as provided at other fire stations in Maui County.

Actions

Table 9.3 Public Facilities and Services - Fire and Public Safety			
No.	Action	Lead County Agency	Partners
9.3.01	Develop <u>an island wide</u> -a fire risk and vulnerability assessment <u>for the area located above Kaunakakai</u> .	MFD	All major landowners Moloka'i Ranch
9.3.02	Explore options for relocating Puko'o Fire Station to a location that is not vulnerable to flooding, tsunamis and best meets the needs of east end residents.	MFD	
9.3.03	Support the staffing upgrade for the Puko'o Fire Station to meet the same national and Maui County minimum staffing levels as provided at the other fire stations in Maui County. Evaluate the results of the "Standards of Coverage" report and address recommended fire service needs.	MFD	
9.3.04	Implement and maintain the "Centers for Public Safety Excellence" accreditation program.	MFD	
9.3.05	Support the implementation of the accreditation program by creating one full time position. Level of effort for Moloka'i would be 15%.	MFD	

9.4 EDUCATION

The Hawaii Department of Education is a statewide school district that manages all public schools in the state. The County of Maui does not have any jurisdiction over the public school system; however, coordination between the State and County is necessary for planning future school locations and acquiring adequate land.

A. EXISTING CONDITIONS

There are four public elementary schools on Moloka'i: a) Kaunakakai, b) Kualapu'u, c) Maunaloa, and d) Kilohana located in Ho'olehua. In Kualapu'u, Moloka'i High/Middle School is for students in grades 7-12. All of the public schools, except Moloka'i Middle have adequate capacity to accommodate projected 2015 and 2035 enrollment. Moloka'i Middle School's 2035 enrollment is projected to exceed capacity; however, the overage could be accommodated by an increase in classrooms and facilities.

Moloka'i High School has career pathway programs of study: Arts and Communication, Business, Industrial and Engineering Technology, Health Services, and Agriculture; however there are no automotive programs, industrial arts, or fine art and musical arts programs. The agriculture program and the Future Farmers of America, allows students to enjoy hands-on experiences in commercial, terrace, permaculture, hydroponic and aquaponic farming. The agricultural program's infrastructure is underutilized. [Moloka'i schools are proud of their Hawaiian language and culture. Hawaiian Language Immersion programs are available to support students from preschool through high school.](#) Moloka'i High also offers Hawaiian language immersion, English as a second language, advanced placement, gifted and talented, honors, alternative learning center and special education programs². Enrollment in 2014 was 326 students, with 27 full-time teachers. [21st Century Community Center Learning Center Grants currently support a variety of enrichment programs at schools across the island.](#)

Aka'ula is a private school with students in grades 5-12 located in Kualapu'u. The Aka'ula School offers an alternative to public school that provides a, multi-age, transitional environment for Moloka'i students in grades five to twelve. They focus on a learning, leading, and decision making as fundamental collaborative processes³.

The University of Hawaii Maui College – Moloka'i Education Center (UHMC-Moloka'i) is located in Kaunakakai. [UHMC-Moloka'i offers access to a wide array of classes \(live and distance education\).](#)

² Hawaii State Department of Education, <http://www.hawaiipublicschools.org>

³ The Aka'ula School, <http://akaulaschool.org/>

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[certificate and degree programs.](#) ~~UHMC-Moloka'i offers a Bachelor or Associate degree in Applied Sciences, an Associate in Arts, and Associate in Science degrees.~~ There is a library and facilities for distance learning through Hawaii Interactive Television System, ~~also known as~~ [and](#) Skybridge. The Skybridge allows two-way interactive learning for students located on Moloka'i, Kahului, Hana, Lāna'i, and Lahaina. There is also access to education through cable TV and the internet.

The UH College of Tropical Agriculture and Human Resources Cooperative Extension Services (CES) is located in Ho'olehua. It also has a demonstration research farm in the Molokai Agricultural Park that shares facilities with UH Maui College Moloka'i Farm. CES programs focus on outreach and continuing education in agriculture, cooperative and leadership development, and DHHL farm development. The Kuha'o Business Development Center provides technical assistance and entrepreneurship.

B. ISSUES

Issue 1: ~~Some~~~~Many~~ people on Moloka'i ~~do not have~~ [have limited](#) relevant technical knowledge or skills to enter the 21st century workforce, acquire skilled jobs, or start their own business.

Issue 2: [Many applicants need remedial courses as they are unable to place in college level English and math based on college entrance test scores.](#)

Issue 3: [Many students are unaware of the Career Pathway programs that are available to them.](#)

[Issue 4: Hawaiian is the official state language, yet it is not taught in public schools.](#)

C. GOAL, POLICIES, AND ACTIONS

Goal Moloka'i will have high-quality educational facilities and programs that accommodate the community's diverse learning needs.

Policies

1. Support the expansion of facilities and programs at the UHMC-Moloka'i campus.
2. Support an expanded array of adult education, post-secondary, vocational, English as a second language, business, technical, professional, and career counseling

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programs that prepare Moloka'i residents for future occupations and business opportunities.

3. Support adequate and affordable preschool facilities and programs.

4. Support expansion of high school vocational programs and development of a fine arts and cultural program.

~~4.5.~~ Support teaching the Hawaiian language in public schools as part of the core curriculum.

~~5.6.~~ Support college and vocational career training beginning at the elementary school level.

~~6.7.~~ Support STEAM (Science Technology, Engineering, Arts and Math) programs for K-12.

Actions

Table 9.4 Public Facilities and Services – Education			
No.	Action	Lead County Agency	Partners
9.4.01 2	Continue to assess and fund adult and post-secondary education programs.	DHHC	DOE UHMC
9.4.02 3	Continue to assess and fund English as a second language classes.	DHHC	DOE
9.4.03 4	Assess need for additional pre-school services.	DHHC	DOE
9.4.04 5	Develop workforce development programs and internships.	OED	Employers
9.4.05 6	Provide a program to explore career path options, including vocational programs.	OED	DOE UH Maui College Employers
9.4.06 7	Provide training for job preparedness, such as <u>proper work ethic, responsibility, resume writing and interviewing</u> as how to dress for work or resume writing.	OED	DOE UH Maui College
<u>9.4.078</u>	<u>Provide opportunities to increase enrollment in post-secondary education.</u>	<u>DHHC</u>	<u>DOE</u> <u>MEO</u> <u>UH Maui College</u>

1 **9.5 HEALTH AND SOCIAL SERVICES**

2 Molokaʻi's health and social service needs are increased due to conditions on the island that
3 include: a) geographic isolation and high cost of off-island travel; b) low measurements of economic
4 health, socio-economic stability and food security; c) high unemployment rates; d) a high
5 percentage of residents relying on subsistence farming, hunting, and fishing; and 5) language
6 barriers⁴. Molokaʻi has been designated a Medically Underserved Area and a Health Professional
7 Shortage Area for Primary Care, Dental Care and Mental Health, by the U.S. Public Health Service.
8 This designation brings some financial support to help provide a broader array of services.

9 **A. EXISTING CONDITIONS**

10 Health Services

11 Molokaʻi's community is served by one hospital, two health centers, a Native Hawaiian health clinic,
12 and a full service pharmacy. The hospital and clinics work in partnership to provide inpatient and
13 outpatient medical and dental care, health education and screenings, mental and behavioral health
14 services, remote rural service, translation, and social services.

15
16 Molokaʻi General Hospital (MGH) is a general medical and surgical hospital located in Kaunakakai
17 with 15 beds, an emergency room, and urgent care clinic. The hospital provides diagnostic and
18 therapeutic imaging services through a CT scanner and ultrasound. In addition, the MGH provides
19 community outreach through health fairs, health screenings and a Meals on Wheels program. A
20 2004 demand analysis indicated no need for additional hospital beds through 2030 beyond the
21 2004 licensed levels. MGH no longer accepts long-term care patients.

22 Many of the hospital's preventive services to the Hawaiian community are offered in partnership
23 with Na Puʻuwai, Inc. a community-based non-profit Native Hawaiian organization. Na Puʻuwai,
24 Inc. was founded in 1985 and is dedicated to betterment of the health conditions of Native
25 Hawaiians⁵.

26 In 2002, Molokaʻi Community Health Center (MCHC) applied for and received funding to develop
27 a freestanding, centrally-located community health center providing core primary health care
28 services⁶. MCHC provides services that focus on the health care needs of a target population that
29 is 200% below the federal poverty guidelines.

⁴ Molokaʻi Ohana Health Care Inc., referencing 2002 & 2003 Hawaii Health Surveys;
.http://www.Molokaʻi ohc.org/ content/population-served

⁵ Na Puʻuwai, Inc., http://www.napuuwai.com/

⁶ Ibid, Molokaʻi Ohana Health Care Inc.

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The Moloka'i Family Health Center provides family and general practice, and internal medicine services. There are also private medical offices offering service in medicine, dental care, optometry, and chiropractic care. The hospital, clinics, pharmacy, and offices are all located within Kaunakakai, with some services to remote rural areas.

Social Services

The Maui County Department of Housing and Human Concerns (DHHC) provides four main areas of social services. These are Early Childhood, Immigrant Services, Aging, and Senior Services. Early childhood resource and referral information, as well as technical assistance, is provided to any person or organization. The County also provides grants that support childhood services, including MEO's Head Start program, Maui Family Support Services, and Imua Family Services on Moloka'i. These programs provide early childhood learning and development that support the child, and those involved in the child's life, to ensure a better transition into kindergarten. DHHC's immigrant social services are located in Kaunakakai and help immigrants achieve and preserve lawful permanent residence, apply for citizenship, and secure and maintain employment. Immigrant families are reunited and strengthened through assistance with petitions, acculturation, and integration.

The Maui County Office of Aging employs a full-time Aging and Disability Services Specialist on Moloka'i to help with needed services to remain as healthy and independent as possible. Services are provided in home or through referral and access programs to frail seniors, family caregivers, and individuals with disabilities of all ages. The Kaunoa Senior Services provides programs and services for well, active seniors and frail homebound residents. These include assisted transportation services, Meals on Wheels Program, and the Congregate Nutrition Program for nutritionally balanced meals in a social atmosphere. For more active seniors there are informational, volunteer opportunities, and a wellness program.

B. ISSUES

- Issue 1: An increasing older and elderly population will increase health and social service needs, including long-term care.
- Issue 2: The Island has immigrant communities with limited English language skills that need health and social services in multiple languages.
- Issue 3: Behavioral and mental health, alcohol and substance abuse, obesity, domestic violence, child abuse and neglect, and sexual abuse, is a concern.

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C. GOALS, POLICIES, ACTIONS

Goal Molokaʻi will have a comprehensive, integrated health care and social services system that provides for the community's health and well-being.

Policies

1. Encourage the provision of enhanced medical, dental, behavioral, and mental health care, and social services for the community through qualified professionals located on Molokaʻi.
2. Encourage partnerships in healthcare provision to expand healthcare professional access, and diversity in service, resources and locations.
3. Support studies to determine community needs and underserved locations and ensure equitable distribution of services.
4. Support public health education and assessment programs throughout the island.
5. Encourage expansion of full-time mental and behavioral health case management positions, psychologists and psychiatrists on island.
6. Support a disabled persons infrastructure system, that includes health and social programs, services for the frail elderly, assistance for home-modifications to support ageing in place, and long-term care facilities.
7. Support enhanced monitoring of care homes and transient facilities which provide services to mentally and physically disabled residents.
8. Encourage multi-modal transportation and recreation planning that increases opportunities for exercise through bike paths and pedestrian improvements.
9. Support wellness and nutrition training for residents.
10. Support traditional cultural practices for community health.

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11. Support immigration services to assist new residents to integrate and become productive community members.

12. Support early childhood services for children and their families to provide quality learning and development.

Actions

Table 9.5 Public Facilities and Services – Health and Social Services			
No.	Action	Lead County Agency	Partners
9.5.01	Conduct community needs surveys and allocate funding to expand the number and variety of social services.	DHHC	
9.5.02	Coordinate with transportation and recreation planners to increase bikeways and pedestrian opportunities for exercise.	DHHC Parks & Recreation	Public Works
9.5.03	<u>Continue to provide social</u> Coordinate services for <u>immigrants, early childhood, aging and seniors.</u>	DHHC	DOH, Local Cultural Services
9.5.05	Encourage support and funding for the network of services for alcohol and substance abuse.	DHHC	
9.5.06	Encourage support and funding for the network of services for domestic violence, sex assault, and families in crisis.	DHHC	DHS DOH
9.5.07	Form partnerships and develop a plan for establishing long-term and short-term supportive housing, palliative care and hospice facilities.	DHHC	DOH Non-profits

9

9.6 GOVERNANCE

The County of Maui is the sole local government for the residents of the three inhabited islands of Maui Nui: Maui, Molokaʻi, and Lānaʻi; there are no townships, or villages with separate municipal governments. The county seat and civic center is in Wailuku, Maui. Maui County has an elected mayor with a four-year term and a nine-member council with two-year terms. Molokaʻi is served by a single representative on the Maui County Council.

A. EXISTING CONDITIONS

Direct participation in Council meetings is difficult for Molokaʻi residents. County Council meetings are held on Maui and are scheduled during normal working hours; transportation to and from these meetings for Molokaʻi residents is limited by ferry schedules and expensive flights. Recent improvements in telecommunications have enabled Molokaʻi residents to participate remotely by phone conference.

Maui County Code 2.41.080 states a minimum requirement of one member of the public from Molokaʻi on a number of County Boards and Commissions. However, it appears that this is not widely known throughout Molokai. Physical access to County Council and committee meetings and meetings with members of the County Council is also limited since Molokaʻi residents have more limited travel options.

B. ISSUES

Issue ~~12~~: Molokaʻi residents are not aware of the opportunities available to them to [serve on County boards and commissions](#).

Issue ~~23~~: Access to County government meetings is limited to teleconferencing if it is available.

C. GOAL, POLICIES, ACTIONS

Goal Government services will be transparent, accessible, cost-effective and responsive to meet the needs of Molokaʻi's residents.

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Policies

1. Support the implementation of Maui County Code 2.41.080 and expanded opportunities for Moloka'i residents to be involved in and affect County government decision making.
2. Encourage public participation in government among all Moloka'i citizens in order to promote civic engagement.
3. Support a variety of information sources and technological connections such as video conferencing for citizens to participate, communicate, and stay informed about their community and government.
4. Develop improved government communication tools to help overcome existing language barriers.
5. Encourage elected officials at all levels of government to conduct regularly scheduled public information meetings on Moloka'i to discuss issues of importance.

Actions

Table 9.6 Public Facilities and Service - Governance			
No.	Action	Lead County Agency	Partners
9.6.01	Continue to improve, promote, and publicize the availability of telecommunications and video conferencing for county services and for participation in County Council, and all board and commission meetings held on Maui.	Mayor's Office	
9.6.02	Provide the Moloka'i Planning Commission with the Planning Director's annual status reports as described in Maui County Code Chapter 2.80B.	Planning Department	
9.6.03	Conduct regularly-scheduled public information meetings on-island.	Mayor's Office	Moloka'i Council Member
9.6.04	Ensure that a minimum of one Moloka'i resident is a member of each board and commission per MCC 2041.080 is fulfilled.	Mayor's Office	
9.6.05	Continue to support Maui County Community television on Moloka'i.	Mayor's Office	

10 | IMPLEMENTATION AND MONITORING

The preceding chapters identify programs, projects, and actions that need implementation to actualize the Molokaʻi Community Plan’s vision, goals, and policies. Maui County Code Chapter 2.80B specifies an implementation program for the plan’s actions and milestones and requires status reports to monitor the progress of implementation. The implementation program includes a capital improvement element, an implementation schedule, and a financial element.

A. IMPLEMENTATION

The capital improvement (CIP) element includes the infrastructure systems and public facilities and services that will be needed over the twenty-year planning period, in two-year increments, to implement the Community Plan’s vision, goals, and policies. CIP projects are included in the implementation schedule to facilitate capital improvement programming and serve as a guide for forthcoming large infrastructure budget items. The list does not include repair and maintenance projects.

The implementation schedule is included in this chapter and includes a description of the project or program, priority, timing, lead implementation agency (County), estimated cost, and potential funding source(s). Actions are identified as either Priority 1 or Priority 2, with Priority 1 being the highest priority. Identifying high priority actions helps agencies focus on implementing key actions considering time and budget constraints. Priority 2 actions are still considered important for implementing the Community Plan. The following questions were used to identify Priority 1 actions:

1. Will the action address an urgent issue?
2. Is the action required for public health and safety?
3. Is the action required by legal mandate?
4. Is the action required to prevent the loss of an irretrievable resource?
5. Will the action benefit the majority of the community?
6. Will the action significantly improve the quality of life of Molokaʻi residents?
7. Is the action required for other actions to be initiated?
8. Is the action already funded?

Actions may be implemented by the lead County agency or by another entity, such as the State or non-profit groups, and assisted by the County agency. For actions that are not the primary responsibility of the County, and there is not a cost to the County budget, the estimated cost column in the implementation table is “not applicable” (N/A). The implementation program should provide enough flexibility over the life of the Plan to allow for reprioritization and adjustments to level of funding. Implementation of the actions listed in the schedule is subject to available funding.

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Infrastructure Planning and Finance Policy Framework

The infrastructure funding strategy provides an efficient and equitable means of planning and financing infrastructure improvements. The County CIP funding strategy is comprised of three policy statements with underlying strategies to effectuate the policies.

1. Infrastructure Services Policy:

The County is responsible for determining areas where infrastructure and public facilities will be supported.

2. Infrastructure Expansion Policy:

Developers are generally responsible for public facility and infrastructure expansion costs associated with their projects. As a condition of subdivision or development approval, the County often requires new developments to construct on-site water, roads, wastewater, park facilities, and other infrastructure and public facilities pursuant to County standards. Upon completion of construction, the County may require the developer to dedicate the infrastructure/facilities to the County. Developments may also be required to donate easements or other types of partial rights to the County. In addition, developments are often required to provide financial assurance, such as bonding, to ensure enforcement of needed corrective action(s) or uninterrupted operation (in case of bankruptcy, abandonment, or any other default on financial obligation).

The County has also considered the imposition of impact fees, which are designed to mitigate the impact of new development on infrastructure and public facility systems. These one-time payments are made by the development; fees are typically passed on to either the seller of land or homebuyer to pay for the cost of infrastructure caused by new development. While the enabling ordinance for traffic impact fees have been enacted, the required studies that determine the actual fee amounts have yet to be adopted; other impact fee ordinances have been discussed but not enacted.

To ensure that no ambiguities exist regarding infrastructure funding responsibilities, the County may establish an infrastructure funding strategy to ensure that infrastructure improvements are implemented prior to or concurrent with development by the responsible party depending on the nature of the infrastructure project.

3. Existing Deficiencies Policy:

Through its CIP program, the County is responsible for funding operations and capital improvements to address existing deficiencies of County-owned and operated systems.

The Existing Deficiencies Policy shall be implemented by, but not limited to, the following strategy:

A. Identify existing service deficiencies and project future operations and maintenance needs: Using the CIP program, needs assessment studies, or adopted level-of-service standards, the County will identify existing service deficiencies and projected operations and

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1 maintenance needs. The County may provide revenues sufficient to maintain the minimum
2 acceptable level-of-service standards over the 20-year planning horizon. The County will
3 encourage the State to upgrade its facilities to meet the County's LOS standards.
4

5 ***B. Develop and Utilize Alternative Funding Sources:*** The County could consider alternative
6 funding sources to be used to finance major CIP projects. Some of these sources are currently
7 available while others would require enabling legislation or voter approval before they could be
8 utilized. Such alternatives include: public-private partnerships, which can save time and costs;
9 strategic budget allocations or trust funds to create special funds for specific purposes; special
10 district financing, such as tax districts or redevelopment districts, where revenues are reinvested
11 in the same geographic area; and peak demand pricing, where the charge for the use of public
12 facilities or infrastructure is increased during periods of heaviest use.
13

14 **B. MONITORING**

15

16 The Monitoring and Evaluation Program establishes a strategy to track plan implementation,
17 evaluate the effectiveness of policies and programs, monitor the quality of life on Moloka'i, and
18 allow for periodic program adjustments. This strategy includes establishing and monitoring
19 performance indicators to help implementing agencies attain planned outcomes. Specific
20 benchmarks will be used to measure progress in the implementation of community plan policies
21 and actions. The Department of Planning will coordinate with the appropriate agencies and
22 program specialists to establish benchmarks for major programs and initiatives. Physical,
23 environmental, cultural, and socio-economic indicators will also be used to assess the overall
24 quality of life on Moloka'i.
25

26 The Department of Planning will oversee the Monitoring and Evaluation Program, which will
27 include the preparation of a Monitoring Report. The Department may modify or add indicators, as
28 needed, to track the impacts of plan implementation. The Department will prepare a monitoring
29 report to validate the progress of plan implementation and provide a portrait of the quality of life
30 on Moloka'i.
31

32 Table 10.1 includes a core set of 39 indicators that could be used to monitor progress toward
33 achieving the goals and objectives of the community plan. Many indicators identified in this plan
34 have been borrowed from existing plans, programs and reports, and are based on available and
35 reliable data to ensure their usefulness throughout the planning horizon. However, they can be
36 modified and updated as new data becomes available.
37

38 Furthermore, the quality of life indicators are intended to represent a range of measurements
39 across the various chapters of the community plan. The indicators are regional in nature to focus
40 on the island as a whole. Where possible, commonly used indicators have been chosen in order
41 to facilitate comparisons between Moloka'i and other jurisdictions. These core indicators not only
42 provide a snapshot of the quality of life on Moloka'i, but also track the progress of key issues that
43 the community plan intends to address. Table 10.2 articulates how the indicators relate to the
44 community plan goals and details appropriate sources of data.
45

October 21, 2015 PD/CPAC Revisions

1 **Table 10.1 Example Core Indicators**

BUILT ENVIRONMENT INDICATORS	<i>LAND USE</i>
	1 Building permits by type
	2 Building permits issued in tsunami inundation zone and future sea level rise (%)
	3 Average density of new developments
	4 New urban developments consistent with Urban and Rural Design Principles (%)
	5 Housing affordability index
	<i>TRANSPORTATION</i>
	6 Vehicle miles traveled
	7 Commute mode shares
	8 Annual transit ridership
	9 Dedicated bike lanes (total miles)
	<i>INFRASTRUCTURE</i>
	10 Recycled waste (%)
SOCIAL ENVIRONMENT INDICATORS	11 Parks and Open Space per 1000 population (acres)
	12 Energy consumption by source (%)
	13 Energy consumption per capita
	<i>ECONOMIC DEVELOPMENT</i>
	14 Cost of Living Index
	15 Employment by sector
	16 Value of agricultural production
	17 Permitted B&Bs and STRHs (#)
	18 Frequency of passenger flights
	19 Food produced and consumed locally
	<i>POPULATION / COMMUNITY</i>
	20 Unemployment rate
	21 Poverty rate
	22 College bound rate
	23 Drug and alcohol arrests
	24 Child abuse and neglect
	25 Sex assault, domestic violence and mental health
	26 Licensed health care practitioners
	27 Adult residential care homes (# beds)
	<i>CULTURAL HERITAGE</i>
	28 Hawaiian Language students (#)
	29 Subsistence food sources
	30 Properties listed on the State or National Registers (#)
	31 Scenic roadways (total miles)
NATURAL ENVIRONMENT INDICATORS	<i>WATERSHED SYSTEMS</i>
	32 Reclaimed water use %
	33 Watershed health
	34 Drinking water quality
	<i>OCEAN / MARINE ENVIRONMENT</i>
	35 Coastal water quality
	36 Healthy coral reefs (%)
	37 Reef fish biomass
	<i>WILDLIFE AND NATURAL AREAS</i>
	38 Threatened and endangered species (#)
	39 Protected and conservation lands (total acres)

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Table 10.2 Core Indicators, Objectives, and Data Sources

	<i>Built Environment Indicators</i>	<i>Objective to Achieve Chapter Goals</i>	<i>Data Sources</i>
	<i>LAND USE AND HOUSING</i>		
1	Building permits by type	Provide housing choices / create mixed-use communities	Planning Department
2	Building permits issued in tsunami inundation zone and future sea level rise (%)	Reduce risk from coastal hazards	Planning Department
3	Average density of new developments	Create walkable communities / increase housing affordability	Planning Department
4	New urban developments consistent with Urban and Rural Design Principles (%)	Create compact, efficient, human scale communities / enhance historic character	Planning Department
5	Housing affordability index	Increase housing affordability	NAR methodology / UHERO / Maui County Data Book
	<i>TRANSPORTATION</i>		
6	Vehicle Miles Traveled	Reduce fossil fuel consumption	Maui County Data Book / HI DOT
7	Commute mode shares	Provide a multi-modal transportation system / reduce fossil fuel consumption	HI DOT
8	Annual transit ridership	Provide a multi-modal transportation system / reduce fossil fuel consumption	County DOT
9	Dedicated bike lanes (total miles)	Provide a multi-modal transportation system / reduce fossil fuel consumption	HI DOT
	<i>INFRASTRUCTURE</i>		
10	Recycled waste (%)	Minimize solid waste / divert solid waste to recycling	Department of Environmental Management
11	Parks and Open Space per 1000 population (acres)	Expand opportunities for recreation	Department of Parks and Recreation
12	Energy consumption by source (%)	Reduce fossil fuel consumption / increase use of renewable energy	DBEDT
13	Energy consumption per capita	Reduce fossil fuel consumption	DBEDT

Table 10.2 Core Indicators, Objectives, and Data Sources (continued)

	<i>Social Environment Indicators</i>	<i>Objective to Achieve Chapter Goals</i>	<i>Data Sources</i>
	ECONOMIC DEVELOPMENT		
14	Cost of Living Index	Quality of life indicator	County of Maui Data Book
15	Employment by sector	Economic diversification	County of Maui Data Book
16	Value of Agricultural Production	Support agricultural economy	UHERO
17	Permitted B&Bs and STRHs (#)	Diversify the tourism industry	Planning Department
18	Frequency of passenger flights	Reliable air transportation	County of Maui Data Book
19	Food produced and consumed locally	Increase locally grown food	DOA, UH CTAHR
	POPULATION / COMMUNITY		
20	Unemployment rate	Economic resilience	UHERO / U.S. Dept. of Labor, Bureau of Labor Statistics
21	Poverty rate	Economic resilience	US Census Community Survey via DBEDT
22	Collage bound rate	Increase post-secondary education	Kids Count Data Centre, Annie E. Casey Foundation
23	Drug and alcohol arrests	Effective support services for individuals and families	Crime in Hawaii, Uniform Crime Reports
24	Child abuse and neglect	Effective support services for individuals and families	HI DHS, Child Welfare and Adult Protective Services
25	Sex assault, domestic violence and mental health	Effective support services for individuals and families	HI DHS, Child Welfare and Adult Protective Services
26	Licensed health care practitioners	Comprehensive health care system	County of Maui Data Book
27	Adult residential care homes (# beds)	Strength the eldercare infrastructure system	County of Maui Data Book
	CULTURAL HERITAGE		
28	Hawaiian language students (#)	Protect the diverse island culture and local traditions	HI DOE
29	Subsistence food sources	Protect the diverse island culture and local traditions	County of Maui Data Book
30	Properties listed on the State or National Registers (#)	Protect cultural resources	HI DLNR, Preservation Division
31	Scenic roadways (total miles)	Protect scenic vistas	Planning Department

Table 10.2: Core Indicators, Objectives, and Data Sources (continued)

	<i>Natural Environment Indicators</i>	<i>Objective to Achieve Chapter Goals</i>	<i>Data Sources</i>
	<i>WATERSHED SYSTEMS</i>		
32	Reclaimed water use	Decrease pollution , sustainability indicator	DOH, Safe Drinking Water Branch
33	Watershed health	Protect + enhance native eco-systems	DLNR, DOH, University of Hawai'i, Pacific Neon
34	Drinking water quality	Increase water quality, basic quality of life	DOH, Safe Drinking Water Branch
	<i>OCEAN / MARINE ENVIRONMENT</i>		
35	Coastal water quality	Decrease pollution	HI, DOH, Clean Water Branch
36	Healthy coral reefs (%)	Improve reef health	Division of Aquatic Resources, Dept. of Land and Natural Resources, HI
37	Reef fish biomass	Increase reef health, preserve biodiversity	Division of Aquatic Resources, Dept. of Land and Natural Resources, HI
	<i>WILDLIFE AND NATURAL AREAS</i>		
38	Threatened and endangered species (#)	Preserve biodiversity	US Fish + Wildlife Service
39	Protected and conservation lands (total acres)	Protect sensitive lands	County of Maui

Moloka'i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Capital Improvement Projects (CIP)								
Wastewater	8.2.04	Replace the Kaunakakai effluent force main prior to the end of its useful life.	CIP	2	2022-2023	Department of Environmental Management (DEM)	2,100	County
Stormwater Management	8.3.02	Build dispersion and retention facilities to address dirt road runoff.	CIP	1		Department of Public Works (DPW)		
Parks & Recreation	9.1.7	Coordinate planning, design and construct a new Kaunakakai gymnasium and athletic building that meets Moloka'i's unique sports needs and serves as a hardened civil defense community shelter for disasters.	CIP	1	2020-2021	Parks & Recreation	35,000	
Police	9.2.03	Coordinate land acquisition, planning, design and construction of a new Moloka'i Police Station at a location that meets the unique needs of the Maui Police Department for Moloka'i, out of the special flood hazard area and tsunami evacuation zone and promotes practical and safe emergency response for the entire Moloka'i community.	CIP	1		Police		
Fire & Public Safety	9.3.02	Explore options for relocating Puko'o fire station to a location that is not vulnerable to flooding, tsunami, and best meets the needs of east end residents.	CIP	1	2016-2018	Fire & Public Safety	100	County
CHAPTER 3 NATURAL, HERITAGE & SCENIC RESOURCES								
Natural Resources	3.1.01	Assist with a conference or workshops of key federal, state, and local agencies, and community and non profit leaders to discuss, plan, and prioritize actions to address environmental and natural resource issues.	Project	1		Office of Economic Development (OED)		
Natural Resources	3.1.02	Compile GIS data to map the highest value ecological areas and natural resources.	Program	2	2016-2021	Planning Department	50	County Federal Private
Natural Resources	3.1.03	Compile GIS data to map primary and secondary groundwater recharge areas to help prioritize protection and restoration efforts.	Project	1	2016-2021	Department of Water Supply (DWS)	2	County Federal

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Natural Resources	3.1.04	Assist in conducting workshops with stakeholder groups to develop an integrated natural and heritage resources management system.	Project	1	2016 - 2021	OED	N/A	N/A
Natural Resources	3.1.05	Assist in conducting, or coordinating public education and involvement events to build community based stewardship and implementation capacity.	Program	2	On-going	OED	N/A	N/A
Natural Resources	3.1.06	Assist in the development of a West Moloka`i dry native forest and lowland shrub restoration program.	Program	2	2016 - 2021	OED	N/A	N/A
Natural Resources	3.1.07	Consult with UHMC-Moloka`i to develop and manage a native plant nursery for community restoration projects.	Program	2		OED		
Natural Resources	3.1.08	Conduct outreach to agricultural, ranching, and development interests to implement BMPs to reduce excess sediment loss, herbicide and pesticide use.	Program	1	2016-2021	OED	20	County
Natural Resources	3.1.09	Review regulations for small scale water retention projects. Assist landowner(s), upon request, to design or construct small scale water retention projects to increase infiltration to the aquifer and control surface water run-off. Include bioretention methods to reduce sediment and nutrient loads from entering coastal waters.	Program	1		Department of Public Works (DPW)		
Natural Resources	3.1.10	Work with federal, state, and county agencies to initiate a program to provide education and support for community stewardship of the coastal areas, including conducting baseline studies on coastal water quality.	Program	1		OED		
Natural Resources	3.1.11	Develop a toolbox of green infrastructure BMPs and conduct workshops for consultants, designers, developers, and builders.	Project	2		DPW	50	County State
Natural Resources	3.1.12	Develop a toolbox of BMPs for use by residents and businesses to improve ecosystem health and water quality in urban and coastal areas. Provide assistance or workshops on BMPs and education to change business and household practices. Maintain a website for public education on water quality pollution prevention and BMPs.	Program	2	On-going	DWS	10 annually	County
Natural Resources	3.1.13	Assist with development of a Community based Game Management Plan.	Project	1	2016-2021	OED	150	County State

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Natural Resources	3.1.14	Continue to support organizations that eradicate invasive species.	Program	On-going	On-going	DWS	N/A	N/A
Natural Resources	3.1.15	Encourage the State to establish a decontamination site on Moloka`i.	Project		2016-2021	OED	N/A	N/A
Heritage Resources	3.2.01	Complete and regularly maintain a GIS inventory of cultural, archaeological and historic resources and trails assembled from existing inventories and databases to be used for project review.	Program	1	On-going	Planning Department	N/A	N/A
Heritage Resources	3.2.02	Identify other significant cultural property types, including rural historic landscapes and traditional cultural properties and take action to include appropriate sites on the National Register.	Project	1	2022-2035	Planning Department	10	County State
Heritage Resources	3.2.03	Establish archaeological and historic districts where high concentrations of sites exist.	Project	1	2016-2021	Planning Department	10	County State
Heritage Resources	3.2.04	Provide education and incentives to encourage property owners to nominate structures and sites to the State and National Register of Historic Places.	Program	2	2016-2021	Planning Department	N/A	N/A
Heritage Resources	3.2.05	Coordinate with cultural practitioners and state agencies to develop public education programs on the proper gathering and use of subsistence resources.	Program	2	2016-2021	Mayor's Office (Environmental Coordinator)	N/A	N/A
Heritage Resources	3.2.06	Develop educational materials addressing impacts from unpermitted ground altering activities; provide instructions for reporting unpermitted activities. Train Moloka`i Development Services Administration (DSA) personnel to immediately respond to complaints.	Program	1	2016-2021	DPW	5	County State
Heritage Resources	3.2.07	Establish a historical interpretive center at Mālama Cultural Park.	Project	2	2022-2035	Parks & Recreation	TBD	County
Heritage Resources	3.2.08	Explore options to protect cultural sites listed in Appendix 3.3.	Project	1	2016-2021	Planning Department	N/A	N/A
Heritage Resources	3.2.09	Establish a comprehensive historical interpretive program including historical markers, maps and brochures identifying ahupua`a and significant historical sites that are appropriate for public interpretation.	Program	2	2016-2021	OED	25	County
Heritage Resources	3.2.10	Coordinate with kupuna knowledgeable in north shore protocol to hold community meetings to educate people about the history and cultural significance of Wailau and Pelekunu and to encourage pono cultural practices while on the north shore.	Project	2	2016-2021	Mayor's Office (Environmental Coordinator)	N/A	N/A

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Heritage Resources	3.2.11	Encourage the Governor to appoint members to the Moloka`i Burial Council so that regular hearings by this body may resume.	Project	1	2016-2021	Planning Department	N/A	N/A
Heritage Resources	3.2.12	Promote Moloka`i cultural events that do not have an adverse effect on natural resources.	Program		2016-2021	OED	N/A	N/A
Scenic Resources	3.3.01	Develop BMPs for land and development uses to protect identified priority view corridors or viewsheds.	Project	2	2016-2021	Planning Department	TBD	County
Scenic Resources	3.3.02	Complete the visual inventory, analysis, and mapping of key scenic view corridors, ridgelines, and viewsheds.	Project	1	2016-2021	Planning Department	TBD	County
Scenic Resources	3.3.03	Develop and implement Scenic Roadway Corridors Management Plan and Design Guidelines.	Project	2	2016-2021	Planning Department	20	County
Scenic Resources	3.3.04	Provide educational workshops for design consultants and developers on scenic resource BMPs	Program	2	2016-2021	Planning Department	N/A	N/A
Scenic Resources	3.3.05	Integrate scenic resource planning into natural and heritage resources strategies and plans.	Program	1	2016-2021	Planning Department	N/A	N/A
CHAPTER 4 HAZARDS								
Hazards	4.01	Continue the development of Moloka`i Incident Command Post in coordination with County Civil Defense.	Program	2	2016-2021	Civil Defense	150	County State
Hazards	4.02	Identify and submit flood and pre-disaster mitigation projects that qualify for funding under the FEMA Pre-Disaster Mitigation Program, Hazard Mitigation Assistance Program, NFIP Severe Repetitive Loss Program and other FEMA funded mitigation and NFIP grants consistent with the Maui County Hazard Mitigation Plan.	Program	1	On-going	Civil Defense	TBD	Federal
Hazards	4.03	Develop programs and distribute materials for public outreach and education to better educate the community on disaster preparedness, hazard mitigation, multi-hazard risks and vulnerabilities and post disaster recovery. Target materials and programs that will provide information on steps to take to protect lives and strengthen property against natural and human related disasters.	Program	2	On-going	Civil Defense	TBD	County State Federal
Hazards	4.04	Seek community information on possible hazardous waste sites buried decades ago; investigate and remediate if needed.	Program	1	2016 - 2021	DEM		

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Hazards	4.05	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to coastal hazards, including SLR, and develop a more coordinated emergency response system of well-defined and mapped evacuation routes.	Project	1	2016-2021	Civil Defense	N/A	N/A
Hazards	4.06	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to wildfires and develop a more coordinated emergency response system of well-defined and mapped evacuation routes. Formalize existing practices on the use of heavy equipment during fires.	Project	1	2016-2021	Fire & Public Safety	10	County
Hazards	4.07	Develop a wildfire information campaign and signage to build public awareness of wildfire hazards. Improve community awareness of the human, economic, and environmental costs associated with wildfires caused by negligence or accident. Engage the community in creating and maintaining fire breaks.	Program	2	2016-2021	Fire & Public Safety	15 annually	County
Hazards	4.08	Support wildfire mitigation activities such as green belts around subdivisions and vegetation control around power poles that will minimize risk of wildfire susceptibility to properties and subdivisions.	Program	2		Fire & Public Safety		
Hazards	4.09	Complete an inventory of vulnerable critical facilities and infrastructure. Include this information in Maui County HMP for future mitigation project funding.	Project	1	2016-2021	Civil Defense	TBD	Federal State
Hazards	4.10	After the Interagency Climate Adaptation Committee report is prepared, perform an assessment of the implications and identify any further mapping/inventory needed related to coastal hazards.	Project	2	2016-2021	Planning Department	20	County
Hazards	4.11	Continue work with FEMA to update FIRMs that incorporate best available information on climate change and SLR.	Project	1	On-going	Planning Department	N/A	N/A
Hazards	4.12	Implement additional CRS activities to improve class ratings and discounts on flood insurance premiums.	Project	2	On-going	Planning Department	TBD	County
Hazards	4.13	Conduct erosion analysis of Moloka`i's shoreline to determine rate of erosion and use the results to determine setback calculations that also factor in incremental effects of SLR.	Project	1	2016-2021	Planning Department	100	County

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Hazards	4.14	Coordinate with Federal, State and County agencies to obtain current SLR information and maps. Plan phased relocation of critical structures and roadways. Plan long term strategic retreat of buildings. Identify priority planning areas where resources and planning efforts should be focused. Identify how and where to use adaptation strategies such as retreat, accommodation, and protection.	Program	2	2022-2035	Planning Department	1,000	County State Federal Private
Hazards	4.15	Per the Maui County Hazard Mitigation Plan, update the HAZUS MH model to incorporate detailed data on state and county bridges located in Moloka`i.	Project	1	2016-2021	Civil Defense	50	County State Federal
Hazards	4.16	Support development of a cultural archive of the kupuna's knowledge of traditional hazard mitigation practices.	Project	2	2016-2021	Planning Department	TBD	County
CHAPTER 5 ECONOMIC DEVELOPMENT								
Economic Development	5.01	Identify, target, and recruit new industries and businesses such as agricultural operations, aquaculture, venison, cultural trades and arts, and information technology.	Program	1	2022-2035	OED	100	County
Economic Development	5.02	Update/implement the Moloka`i Responsible Tourism Initiative.	Project	2	2016-2021	OED	25	County
Economic Development	5.03	Continue to assess potential shipping options including utilizing the ferry as a small cargo carrier between Maui and Moloka`i.	Project	2	2016-2021	OED	N/A	N/A
Economic Development	5.04	Continue to work with inter island airlines to keep airfares affordable and service frequency adequate to accommodate the needs of Moloka`i visitors, residents, and businesses.	Program	2	On-going	OED	N/A	N/A
Economic Development	5.05	Develop a Moloka`i Agriculture Strategic Plan for all farms.	Project	1	2016-2021	OED	50	State
Economic Development	5.06	Continue to provide business courses to farm owners and agricultural entrepreneurs that include education about State and Federal loan and grant opportunities.	Program	2	On-going	OED	2,500	County
Economic Development	5.07	Encourage the development of cooperative agricultural development programs between the County and the DHHL to support diversified agricultural pursuits.	Program	2	2016-2021	OED	N/A	N/A
Economic Development	5.08	Create a survey of the Moloka`i population to determine the reasons for the high rate of "discouraged workers".	Project	2	2016-2021	OED	20,000	County

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Economic Development	5.09	Continue and enhance educational opportunities for Moloka`i's students in areas such as STEM education, business management, leadership, agriculture, and vocational training.	Program	1	On-going	OED	10,000	County Private
Economic Development	5.10	Assess how environmental impact, invasive species, feral ungulates, natural resources, and other factors will negatively or positively impact Moloka`i's present and future.	Project	2	On-going	OED	25	County State Private
Economic Development	5.11	Develop a permanent appropriate site for the farmer's market in Kaunakakai to promote locally grown fresh produce and products.	Project	2	2016-2021	OED	TBD	County
Economic Development	5.12	Identify economic opportunities for the use of targeted plant and animal species for value added products	Project			OED		
Economic Development	5.13	Assess which development regulations are going to discourage investors from making improvements on Moloka`i.	Project			OED		
Economic Development	5.14	Explore the possibility to provide incentives to landowners to help bring county code legacy issues into compliance for the purpose of maintaining affordable rental rates.	Project		2016-2021	Planning Department	N/A	N/A
Economic Development	5.15	Support workforce development efforts to help improve Moloka`i's economy.	Program		On-going	OED	N/A	N/A
Economic Development	5.16	Develop opportunities to get more local agricultural products into local markets.	Program		On-going	OED	N/A	N/A
CHAPTER 6 LAND USE & HOUSING								
Land Use	6.1.01	Adopt a comprehensive zoning map for Moloka`i. Conduct a comprehensive review of interim zoned lands to identify and adopt zoning that is consistent with the Community Plan.	Project	1	2016-2021	Planning Department	TBD	County
Land Use	6.1.02	Amend the zoning code to facilitate the development of mixed use, pedestrian oriented communities.	Project	1	2016-2021	Planning Department	300	County
Land Use	6.1.03	Implement County responsibilities under Acts 183 (2005) and 233 (2008) to designate and establish Important Agricultural Lands (IAL) and the incentives therein.	Program	2	2016-2021	Planning Department	500	State
Land Use	6.1.04	Review the SMA boundary and make changes as necessary to comply with the objectives and policies defined in HRS § 205A-2 and incorporate best available information on Climate Change and SLR.	Project	1	2016-2021	Planning Department	TBD	County

Moloka'i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Land Use	6.1.05	Research and review poor or highly sloped agricultural lands for conversion to different designations.	Project	2	2022-2035	Planning Department	N/A	N/A
Housing	6.2.01	Develop and implement a comprehensive affordable housing plan for Moloka'i.	Project	1		Housing & Human Concerns (DHHC)		
Housing	6.2.02	Implement a housing rehabilitation program including loans, grants, technical assistance and community outreach.	Program	1		DHHC		
Housing	6.2.03	Amend the zoning code to allow a greater variety of housing types to address affordability, including mixed use, mixed housing types, co-housing, prefabricated homes, and small lots.	Project	1	2016-2021	Planning Department	Possibly with 6.1.02 (TBD)	County
Housing	6.2.04	Provide assistance with securing / leveraging grants, Low Income Housing Tax Credits, and other resources that support affordable housing, such as housing models that can be built affordably.	Program	1		DHHC		
Housing	6.2.05	Investigate whether a community land trust would consider operating on Moloka'i.	Project	2		DHHC	N/A	N/A
Housing	6.2.06	Encourage DHHL to establish a building code that protects public health and safety and benefits DHHL beneficiaries.	Project		2016-2021	DPW	N/A	N/A
CHAPTER 7 COMMUNITY DESIGN								
Community Design	7.01	Amend the 1993 Moloka'i Country Town Business Design Guidelines.	Project	1	2016-2021	Planning Department	50	County
Community Design	7.02	Develop sub area development plans for Kaunakakai, Maunaloa, Kaluako'i, Kualapu'u / Ho'olehua, and the east end of Moloka'i.	Project	1	2016-2021	Planning Department	TBD	County
Community Design	7.03	Develop a pedestrian linkage between Malama Park and Kaunakakai through streetscape improvements.	Project	2	2022-2035	Planning Department	TBD	County
Community Design	7.04	Develop and adopt rural and small town street design standards that are appropriate for Moloka'i.	Project			DPW		
Community Design	7.05	Create a funding source or mechanism for small business owners to renovate businesses in the island's small towns.	Program	2	2016-2021	OED	50	County

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Community Design	7.06	Develop incentives to promote the use of sustainable green building and development practices.	Program	2	2022-2035	Mayor's Office (Environmental Coordinator)	TBD	County
Community Design	7.07	Develop practicable incentives for Moloka`i businesses and property owners to implement sub-area development plan projects purposed to preserve, maintain, and enhance buildings, structures, sites, viewpoints, pedestrian ways, and streets.	Program	2	2022-2035	Planning Department	TBD	County
Community Design	7.08	Conduct a study to improve walkability in Kaunakakai.	Project	2	2016-2021	Planning Department	20	County
Community Design	7.09	Review and update the indigenous architecture ordinance as appropriate.	Project		2016-2021	Planning Department	N/A	N/A
Community Design	7.10	Investigate options to share the cost of BCT guideline requirements for infrastructure upgrades among all Kaunakakai businesses, such as an Assessment District, so that renovations are economically feasible.	Project		2016-2021	Planning Department	N/A	N/A
CHAPTER 8 INFRASTRUCTURE								
Water	8.1.01	Support the development of a Moloka`i Water Use and Development Plan (WUDP) that is consistent with the goals, policies and implementation strategy of the Moloka`i Community Plan.	Project	1	2016-2021	DWS	200	County
Water	8.1.02	Implement recommendations from the 2013 <i>Update of the Hawaii Water Reuse Survey and Report</i> .	Project	2	On-going	DEM	N/A	County
Water	8.1.03	Promote water conservation programs.	Program	1	On-going	DWS	40 annually	County
Water	8.1.04	Develop, adopt and implement a wellhead protection strategy and ordinance for County water distribution systems.	Program	1	2016-2021 On-going	DWS	50 adoption TBD implementation	County
Water	8.1.05	Encourage all water purveyors to work together to address future water demand and supply issues.	Program	1	On-going	DWS	10 annually	County
Water	8.1.06	Explore the possibility of requiring new developments with privately owned public water systems to meet DWS engineering standards.	Project	2		DWS		
Water	8.1.07	Explore the possibility of DWS taking over Molokai Ranch water systems.	Project	2	On-going	DWS	TBD	Private County

Moloka`i Community Plan Implementation Actions DRAFT October 21, 2015								
Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Water	8.1.08	Encourage the acquisition of USGS stream gauges be placed in Moloka`i's important streams.	Project			DWS		
Water	8.1.09	Develop improved water transmission and/or storage systems to provide better fire protection.	Program			DWS		
Water	8.1.10	Continue to fund watershed partnership on Moloka`i.	Program	1	On-going	DWS	300 annually	County
Wastewater	8.2.01	Assess the feasibility of either providing measures to protect the Kaunakakai WWTF against inundation threats or of relocation it out of the coastal floodplain.	Project	1	2022-2035	DEM	200	County
Wastewater	8.2.02	Conduct a wastewater reuse study that includes identification of potential reclaimed water users, required infrastructure improvements, estimated costs, and funding sources.	Project	2	2016-2021	DEM	50	County
Wastewater	8.2.03	Explore options and necessary code and regulation changes to allow graywater reuse systems for irrigation and toilet flushing.	Project	2		DPW	N/A	N/A
Stormwater Management	8.3.01	Develop a comprehensive stormwater management plan that emphasizes use of natural systems drainage where possible.	Project	1		DPW	500	County
Stormwater Management	8.3.03	Implement the Kaunakakai Master Drainage Plan.	Project	1		DPW	1,000 per year	County
Stormwater Management	8.3.04	Inspect, maintain, and if necessary, repair or install new stormwater drainage swales and culverts and remove blockages from drains and channels.	Program	1		DPW	500 per year	County
Stormwater Management	8.3.05	Prepare a GIS database which inventories existing stormwater infrastructure.	Project	2		DPW		County
Stormwater Management	8.3.06	Evaluate older swales and drains for current functioning and restore, if needed. Add natural drainage storage and filtration to supplement existing system.	Project	2		DPW		
Stormwater Management	8.3.07	Improve or restore historic wetlands that help to mitigate the impacts from stormwater drainage systems.	Program			DPW		
Solid Waste	8.4.01	Expand waste diversion and recycling programs that include appliances, metals, plastic, glass, cardboards, green-waste, and other recyclable materials.	Program	2		DEM		
Solid Waste	8.4.02	Increase public outreach, education, and incentive programs that improve waste reduction, reuse, and recycling.	Program	2		DEM		
Solid Waste	8.4.03	Implement the ISWMP through programs, improvements, and upgrades to the solid waste management system; execute the CIP budget as funds allow.	Program	2		DEM		
Solid Waste	8.4.04	Expand the solid waste recycling center's operating hours as funding and budgets allow.	Project	1	2016-2021	DEM		County

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Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Solid Waste	8.4.05	Explore the feasibility of locating more trash cans throughout the island.	Project	2	2016-2021	DEM	TBD	County
Solid Waste	8.4.06	Conduct a feasibility study to explore waste-to-energy solutions.	Project	2		DEM		
Solid Waste	8.4.07	Develop educational signage to be located at the entry of the County recycling site.	Project	1		DEM		
Solid Waste	8.4.08	Explore the feasibility of having more transfer stations located throughout Moloka`i Island.	Project	1	2016-2021	DEM	TBD	
Solid Waste	8.4.09	Form a partnership with Molokai NGOs, State Agencies, and DHHL to remove and recycle junk cars from Molokai.	Program	1	On-going	DEM		
Solid Waste	8.4.10	Conduct annual reviews of Solid Waste contracts to provide oversight and enforcement.	Program	1	On-going	DEM	N/A	N/A
Transportation	8.5.01	Work with State DOT to encourage that the airport and air services meet the needs of Moloka`i's residents, visitors and businesses.	Project	2	On-going	OED	N/A	N/A
Transportation	8.5.02	Support the continued air services between topside Moloka`i and Kalaupapa.	Project	2	2016-2021	OED	10	County
Transportation	8.5.03	Identify challenges and propose solutions to transporting Moloka`i agricultural products to Maui and Oahu markets.	Project	1	On-going	OED	N/A	N/A
Transportation	8.5.04	Advocate for increased barge and ferry service to and from Moloka`i.	Project	1	On-going	OED	N/A	N/A
Transportation	8.5.05	Identify harbor and airport improvements designed to further support the agricultural industry.	Project	2	2016-2021	OED	10	State
Transportation	8.5.06	Plan for an integrated multi modal transportation system with complete streets that serve automotive, public transit, bicycle, pedestrian, and other land transportation modes.	Project	2		DPW	250	County State
Transportation	8.5.07	Develop Moloka`i specific roadway standards and guidelines consistent with BCT guidelines for rural roads.	Project	1		DPW		County
Transportation	8.5.08	Develop and implement a trail, greenway and open space access plan that utilizes old agriculture roads and trails where appropriate.	Project	2	2016-2021	Planning Department	30	County
Transportation	8.5.09	Integrate a parking study with parking mitigation measures appropriate for Moloka`i into a Kaunakakai Revitalization and Beautification Plan. Explore the concept of centralized parking in Kaunakakai Town and utilize areas such as the Old Electric Park.	Project	1	2016-2021	Planning Department	50	County
Transportation	8.5.10	Evaluate existing MEO transportation services to identify possible improvements to routes and pick up and drop off locations and other supporting facilities.	Project	1	2016-2021	DOT	N/A	N/A

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Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Transportation	8.5.11	Support additional access routes located around Kaunakakai to facilitate access to and from town.	Project	1		DPW		
Transportation	8.5.12	Explore the possibility of the County acquiring privately owned roads on Moloka`i.	Project	2		DPW		
Transportation	8.5.13	Support the completion of a feasibility study to develop a boat ramp in East Moloka`i to meet the community's needs.	Project			Parks & Recreation		
Transportation	8.5.14	Encourage a bike share program for Moloka`i.	Program			DPW		
Transportation	8.5.15	Encourage the continued practice of no fee parking at the Moloka`i airport.	Project	1	On-going	OED	N/A	N/A
Energy	8.6.01	Develop a Diversified Energy Strategy for Moloka'i that examines locations for large and small scale renewable energy systems.	Project	1		Energy Office		
Energy	8.6.02	Create a smart grid that would allow for integration of additional renewable energy sources.	Project	2		Energy Office		
Energy	8.6.03	Provide loan programs and tax incentives to encourage individuals and businesses to install renewable energy systems and to use energy saving devices.	Program	2		Energy Office		
Energy	8.6.04	Develop an ordinance that would require all new County buildings and facilities to achieve specific energy efficiency standards such as LEED certification.	Project	2	2022-2035	DPW	N/A	County
Energy	8.6.05	Encourage the use of electric vehicles. Support the installation of Photovoltaic (PV) charging stations throughout the Island.	Project	2		Energy Office		
Telecommunications	8.7.01	Work with telecommunications providers to expand coverage and provide more reliable service throughout the island.	Program	1	On-going	OED	N/A	N/A
Telecommunications	8.7.02	Work with internet providers to expand high speed internet service throughout the island.	Program	1	On-going	OED	N/A	N/A
Telecommunications	8.7.03	Provide high speed internet at all county meeting facilities.	Project	1	2016-2021	OED	150	County
Telecommunications	8.7.04	Encourage more provision of wireless "hotspots" in Moloka`i's Country Towns.	Program			OED		
CHAPTER 9 PUBLIC FACILITIES & SERVICES								
Parks & Recreation	9.1.01	Develop, adopt and regularly update a parks and recreation master plan that incorporates public facilities, parks, other recreational opportunities and a financial component.	Project	1	2016-2021	Parks & Recreation	30	County

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Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Parks & Recreation	9.1.02	Amend development regulations to ensure the construction of adequate parking with pathways near public shoreline access points.	Project	1	2022-2035	Planning Department	TBD	County
Parks & Recreation	9.1.03	Adopt a beach/mountain access dedication ordinance using Transfer Development Rights addressed in HRS Chapter 46 to improve access along the shoreline and mountains.	Project	2	2022-2035	Planning Department	TBD	County
Parks & Recreation	9.1.04	Develop a master plan that would identify improvements to Duke Maliu Regional Park.	Project	2	2016-2021	Parks & Recreation	80	County
Parks & Recreation	9.1.05	Provide shade for One Ali'i Park's playground area.	Project	1		Parks & Recreation		
Parks & Recreation	9.1.06	Consider repurposing the Kilohana Park for a potential site to relocate and build a new Puko'o Fire Station.	Project			Parks & Recreation		
Parks & Recreation	9.1.08	Explore land acquisition and development of park facilities at Kumimi Beach.	Project	2		Parks & Recreation		
Parks & Recreation	9.1.09	Explore state or county land acquisition and development of park facilities at Kamalo.	Project	2		Parks & Recreation		
Parks & Recreation	9.1.10	Explore state or county land acquisition and development of park facilities at Dixie's.	Project	2		Parks & Recreation		
Parks & Recreation	9.1.11	Work with County, State, and Federal agencies and the, community to resolve Malama Park issues.	Project		2016-2021	Parks & Recreation	N/A	N/A
Police	9.2.01	Coordinate with community organizations in their prevention and treatment efforts to reduce substance use and abuse.	Program	2	Ongoing	Police	N/A	N/A
Police	9.2.02	Continue working cooperatively with the Prosecuting Attorney and the Drug Enforcement Agency (DEA) to enforce substance abuse laws.	Program	1	Ongoing	Police	N/A	N/A
Police	9.2.04	Collaborate with community organizations and other appropriate groups to provide Moloka'i community and cultural sensitivity training for new recruits and transferred personnel.	Program			Police		
Fire & Public Safety	9.3.01	Develop an island wide fire risk and vulnerability assessment.	Project	1	2016-2021	Fire & Public Safety	30	CWPP Federal?
Fire & Public Safety	9.3.03	Support the staffing upgrade for the Puko'o Fire Station to meet the same national and Maui County minium staffing levels as provided at the other fire stations in Maui County. Evaluate the results of the "Standards of Coverage" report and address recommended fire service needs.	Project	1	2016-2021	Fire & Public Safety	380 annually	County
Fire and Public Safety	9.3.04	Implement and amintain the "Centers for Public Safety Excellence" accreditation prorgam.	Program	1	On-going	Fire & Public Safety	8	County

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Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Fire and Public Safety	9.3.05	Support the implementation of the accreditation program by creating one full time position. Level of effort for Moloka`i would be 15%.	Program	1	On-going	Fire & Public Safety	20	County
Education	9.4.01	Continue to assess and fund adult and post secondary education programs.	Program	2	On-going	DHHC		
Education	9.4.02	Continue to assess and fund English as a second language classes.	Program	2	On-going	DHHC		
Education	9.4.03	Assess need for additional preschool services.	Project	1		DHHC		
Education	9.4.04	Develop workforce development programs and internships.	Program	1		DHHC		
Education	9.4.05	Continue to provide a program to explore career path options, including vocational programs.	Program	1	On-going	DHHC		
Education	9.4.06	Continue to provide training for job preparedness, such as proper work ethic, responsibility, resume writing, and interviewing.	Program	2	On-going	DHHC		
Education	9.4.07	Provide opportunities to increase enrollment in post secondary education.	Program			DHHC		
Health & Social Services	9.5.01	Conduct community needs surveys and allocate funding to expand the number and variety of social services.	Project	2		DHHC		
Health & Social Services	9.5.02	Coordinate with transportation and recreation planners to increase bikeways and pedestrian opportunities for exercise.	Project	2		Parks & Recreation		
Health & Social Services	9.5.03	Continue to provide social services for immigrants, early childhood, aging, and seniors.	Program	2	On-going	DHHC		
Health & Social Services	9.5.04	Encourage support and funding for the network of services for alcohol and substance abuse.	Project	1		DHHC		
Health & Social Services	9.5.05	Encourage support and funding for the network of services for domestic violence, sex assault, and families in crisis.	Project	1		DHHC		
Health & Social Services	9.5.06	Form partnerships and develop a plan for establishing long term and short term supportive housing, palliative care and hospice facilities.	Project	1		DHHC		
Governance	9.6.01	Continue to improve, promote, and publicize the availability of telecommunications and video conferencing for county services and for participation in county council, and all Board and Commission meetings held on Maui.	Program	1	On-going	Mayor's Office	N/A	N/A
Governance	9.6.02	Provide the Moloka`i Planning Commission with annual status reports received by the Planning Director as described in Maui County Code Section 2.80B.070(H).	Project	1	On-going	Planning Department	N/A	N/A

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Community Plan Chapter	Action No.	Description	Type	Priority	Timing	County Agency Lead	Est. Cost (\$1,000)	Funding Source(s)
Governance	9.6.03	Conduct regularly scheduled public information meetings on island.	Program	1	2016-2021	Mayor's Office	N/A	N/A
Governance	9.6.04	Ensure that a minimum of one Moloka`i resident is a member of each board and commission per MCC 2041.080 is fulfilled.	Program	1	2016-2021	Mayor's Office	N/A	N/A
Governance	9.6.05	Continue to support Maui County Community television on Moloka`i.	Program	1	2016-2021	Mayor's Office	N/A	N/A

Appendix 1.1 MOLOKA`I HISTORY SUMMARY

There were two initial land divisions on the island of Moloka`i, the *Ko`olau* and the *Kona* Districts. In 1859, the Hawaiian Government combined the districts as it determined that one district would be more efficiently administered than two. This was done because the population of the island had dropped to 2,864 and increasing numbers of people were beginning to migrate from the windward valleys on the north side of the island to the more accessible leeward coastal regions. Then in 1909, a political division of the island was made to incorporate Moloka`i as one of the districts in the newly formed Maui County, where it remains today. The Kalaupapa Settlement was administratively separated and became known as Kalawao County, managed by the State Department of Health.

Throughout its history, the island has been characterized by its rural, agricultural base, first established by the early *kanaka maoli*. Moloka`i's strong sense of traditional, culturally significant history is represented by its many ancient Hawaiian sites, as well as by the impressive ruins of Kalua`aha Church, built in 1844 representing the establishment of the first Missionary station in 1832 and Father Damien's St. Joseph's church at Wawaia.

One of the earliest settlement dates for Hawai`i, 500-600 A.D., established by carbon-14 testing, was found on the Halawa Valley shoreline along the windward coast of the island of Moloka`i. These deep valleys with their perennial streams, separated one from another by sheer *pali* plunging vertically into the sea, were developed into terraces for intensive taro cultivation. Today, the stone evidence of these extensive irrigation systems, terracing, *heiau*, *ko`a* (fishing shrines) and habitation sites are found in the now largely deserted valleys.

The more forgiving lush, green southeastern portion of this land is thought to have been the home of the majority of early Hawaiians. *Lo`i Kalo* (poned terraces) were found in every wet valley and ringed the shoreline sides of the numerous stone-walled fishponds stretching almost uninterrupted from Honolewai to Waikāne and beyond. *Mauka* of the ponds, *`uala* (sweet potato) and *wauke* (paper mulberry) plants were cultivated between long shallow terraces which swept across the lower *kula* slopes. There are 136 recorded *heiau* on the island and of these 36 are found from Kamalo`o mana`e to Honoulimalo`o, including `Ili`ili`opae *heiau* at Mapulehu, the largest on the island and thought to be the oldest.

At the time of western contact in 1778, the estimated population figure for Moloka`i was 10,500. In 1850, a Hawaiian government census estimated that the island population was 3,540. By 1910, this figure had fallen to 1,006, not including the patients at the Kalaupapa Settlement.

Although not officially in the planning area being considered; Kalawao had a significant and important part in the history of Moloka`i. During the early 1800's the Kalawao peninsula on the windward coast held a small thriving community of Hawaiians. Partially due to its strategic

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1 location between the deepest valleys and the summer fishing grounds to the west, it served as a
2 center of the Koʻolau District's activities. Its isolated location was chosen in 1865 by
3 Kamehameha V to serve as the area set aside for those unfortunate victims of leprosy, or
4 Hansen's Disease. The Hawaiian residents were relocated and given land either at Kainalu on
5 the east end of Molokaʻi or on one of the other Hawaiian Islands. The *pali* trails became the life-
6 lines for food and supplies to the settlement, greatly increasing the need for reliable trails and a
7 cart road from the *pali* to the harbor at Kaunakakai. Access was strictly controlled and the area
8 was virtually cut off from the rest of the population of the island. There were around 700 patients
9 when Father Damien arrived in 1873 to spend the rest of his life caring for the sick of the
10 peninsula. Molokaʻi residents were often employed by the Department of Health, which
11 administered the Settlement, to keep the trails and road passable. It was during this period that
12 Molokaʻi became known as the Lonely Isle, and in 1909, the area was officially separated from
13 Molokaʻi as Kalawao County.

14
15 In 1859, Kamehameha IV had established a sheep ranch on the west end at Kaluakoʻi, which his
16 brother Kamehameha V expanded by acquiring additional lands augmented by other types of
17 livestock. This was the founding of Molokaʻi Ranch, later purchased in 1897 by a group of
18 Honolulu businessmen when it became known as the American Sugar Company. The sugar
19 enterprise did not last long as their wells, with the sustained pumping required, produced saline
20 water which soon killed the cane in the fields. The ranch again reverted to a livestock venture.

21
22 Various diversified agricultural enterprises had been established during the 1870's, among them
23 three small-scale sugar plantations and mills at Kalaʻe, Moanui and Kamaloʻo. These operations
24 had all shut down by 1900. One of the few remaining significant historical sites on the island is
25 the restored 1878 R. W. Meyer Sugar Mill at Kalaʻe.

26
27 Pukoʻo was the first town in the western sense and the first County seat with a court house, lock-
28 up, wharf and several small stores. As Molokaʻi developed into a limited market-oriented
29 economy surrounding the plantation and ranching activities to the west, a gradual population shift
30 began to occur, and in 1925 the County business center was moved to ʻUalapuʻe, where a new
31 hospital had opened. Changes were taking place so rapidly, that only ten years later Kaunakakai
32 had assumed the role of major commercial and political center of the island, and the physical
33 facilities were again transferred westward.

34
35 Usually islands were dependent on their surrounding waters for the transportation of goods and
36 people; however, considering the long, narrow configuration of Molokaʻi, it would seem probable
37 that trails became a more practical and convenient means of travel from north to south, windward
38 to kona. These trails were gradually turned to horse paths, later widened to accommodate animal
39 drawn cars, wagons or buggies, and eventually when trucks and the automobile were introduced
40 to Molokaʻi, they became western-style roads. This new mode of transportation required not only
41 better roads, but supplies of oil and gasoline for fuel.

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1 As larger ships with deep drafts came to the islands, they required wider openings in the reefs
2 and deeper, well-protected waters for anchorage. On Molokaʻi, the harbors were shallow and
3 vulnerable to shifts in the gusty winds. Ships not able to negotiate the reef were forced to anchor
4 in deeper water or tie up to the government installed buoys. Canoes or whaleboats transported
5 passengers and goods to shore, to be met by ox-carts driven over the shoals or to be later
6 deposited on one of the small wharves. The cattle were forced into the water to swim to the
7 waiting ships and lifted by sling onto the decks.

8
9 Contributing to the modernization of transportation on Molokaʻi, several wharves were
10 constructed during the early 1880's at Kaunakakai, Pukoʻo, Kamaloʻo, Kalaupapa and Pelekunu.
11 Of the five original wharves, only Kamaloʻo wharf barely survives today and is gradually breaking
12 up. The stones of old Kaunakakai wharf are under water approximately one hundred yards west
13 of the present wharf, built in 1899.

14
15 In the early 1900's, inter-island steamers began carrying freight, produce and passengers to and
16 from Molokaʻi, an increasingly vital link for the economic well-being of the island. The
17 Kaunakakai wharf has been improved and lengthened several times over the years; the harbor
18 has been dredged and cleared of obstructions and the opening in the reef widened to
19 accommodate the larger barges of Young Brothers and slips for fishing and pleasure boats.

20
21 Passenger travel by ship became less popular with the opening of Hoʻolehua airport in 1928; and
22 in 1929, the Inter-Island Airways inaugurated their first regular air service to Molokaʻi's new
23 airport, providing a fast, reliable link with other islands.

24
25 The island's population began to increase dramatically in the early 1920's, and by 1930 there
26 were 4,427 people on the island; an increase of 3,421 in ten years. The first change occurred
27 when the Government passed the Hawaiian Homes Act in 1921, resulting in the settlement of
28 Kalamaʻulna, Hoolehua, Palaʻau and Kapaʻkea. The establishment of two pineapple plantations,
29 Libby, McNeill and Libby (later Dole Pineapple) at Maunaloa in 1923, and California Packing
30 Corporation (Del Monte) in 1927 at Kualapuʻu, further encouraged the gradual population shift
31 west from the more populated eastern areas of the island. These plantations both closed down
32 during the 1970's and 1980's, leaving the island again dependent on diversified agriculture,
33 primarily vegetable farming and cattle ranching. In the late 1970s, resort development at the west
34 end of the island at Kaluakoi became an influence on the islands economy. The population
35 increased during this period to 6,049. The population peaked in 2000 at 7,404 and then declined
36 to 7,255 over the next decade due to closure of the Kaluakoʻi Hotel and shuttering of Molokai
37 Ranch operations. During the same period, biotech seed companies began operations on
38 Molokaʻi.

39
40 The character of the island of Molokaʻi remains a truly *mokupuni kuaʻaina* (country island) both
41 culturally and geographically, and it is this that distinguishes it from other islands and makes
42 Molokaʻi *Molokaʻi*.

Appendix 1.2 Background Studies for Community Plans

The following list of technical studies was used in the development of the Moloka'i Community Plan. The public facilities and infrastructure assessments, and the socio-economic forecast were conducted for the County of Maui General Plan. The economic development and housing issue papers, and the land use forecast were conducted specifically for this community plan update.

- The Final Public Facilities Assessment Update County of Maui (March 2007) identifies public facilities and services (e.g., schools, parks, police and fire protection, hospital, and solid waste disposal services) issues and opportunities in high-growth community plan regions.
- The County of Maui Infrastructure Assessment Update (May 2003) identifies infrastructure (e.g., roadways, drainage, water, wastewater, telephone and electrical systems) issues and opportunities in the community plan regions.
- The Moloka'i Economic Development Issue Paper: A Discussion Paper for the Department of Planning Community Plan Update (December 2010 and 2015 Update) discusses current economic conditions and broad alternative economic futures.
- The Moloka'i Housing Issue Paper, Draft: A Discussion Paper for the Moloka'i Community Plan Update (December 2010) discusses current issues and projected future needs.
- The Land Use Forecast, Island of Moloka'i, Maui County General Plan Technical Resource Study (October 2013) estimates the amount of available land for urban uses and the likely demand for that land between 2010 and 2035.
- The Socio-Economic Forecast, The Economic Projections for the Maui County General Plan 2030 (September 2014) projects residential, visitor, and employment growth, as well as housing demand. This planning tool is used to predict future growth scenarios for each community plan region.

Appendix 1.3 Community Engagement

Before the CPAC process began, the county held several public workshops and conducted many interviews with Molokaʻi residents during 2010-2011. The purpose of these activities was to hear directly from the people who lived on the island, to listen to their concerns, and to understand what their hopes are.

Open House Events: June – October 2010

June 2010

The kick-off open house for the Molokaʻi Community Plan was held on Saturday, June 26 from 10:00 AM to 2:00 PM at the Kaunakakai Elementary School cafeteria. More than 40 residents attended the open house, which was organized to solicit and record as many comments as people were willing to offer. Participants could visit five “stations” in the room. Some displayed information about Molokaʻi while others asked visitors to write comments in response to specific questions.

October 2010

Two additional workshops were held in October 2010 to gather comments from Molokaʻi residents on a variety of questions and issues. The workshop was organized by the Long Range Division (LRD) staff from the Maui County Planning Department and its consultant team from Chris Hart and Partners (CHP). It was held from 9:00 AM to 1:00 PM at the Mitchell Pauole Center and about 60+ people participated in the workshop, based on the sign-in sheets and a visual count.

The workshop was designed with three sessions: 1) Vision and Core Values; 2) Issues and Opportunities; and 3) Goals and Strategies. Participants in small groups were asked to respond to specific questions on these three topics.

The methodology used for the third workshop differed from the second. Each group was given a specific topic area to discuss rather than each group covering all topic areas. This methodology was chosen due to the amount of material to be covered. The four topic areas consisted of 1) economic development, 2) heritage resources, 3) land use, development and housing, and 4) infrastructure and public services.

November 2014

An outdoor open house was held on Saturday, November 15 from 10:00 AM – 1:00 PM at Kaunakakai Elementary School. Because the last event was held several years previously, this

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1 open house was meant as a ‘refresher” of what had been expressed in the three previous
2 community workshops.
3

4 **Interviews**

5 During 2010 and 2011, about 40 interviews with Molokaʻi residents were conducted by the
6 county’s planning staff. The interviews typically took about an hour and asked people what their
7 thoughts were on the island’s issues, opportunities, ideas for the future, and any other topics that
8 were particularly relevant. Interviews were almost always held at a residence or office and
9 included from one to three of the county’s planners.
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Appendix 2.1 Definition of Sustainability in Hawai'i

Definition of Sustainability from *Hawai'i 2050 Sustainability Plan* (2008):

A Hawai'i that achieves the following:

- *Respects the culture, character, beauty and history of our state's island communities*
- *Strikes a balance between economic, social and community, and environmental priorities*
- *Meets the needs of the present without compromising the ability of future generations to meet their own needs.*

The updates to the County of Maui's General Plan – which includes the Countywide Policy Plan, the Maui Island Plan, the Lana'i Community Plan, the Moloka'i Community Plan, the Kaho'olawe Community Plan, and the Community Plans on Maui Island – embrace this concept of sustainability, along with the guiding principles in the *Hawai'i 2050 Sustainability Plan*.

In 2011, the Hawai'i State legislature established sustainability as a state priority by incorporating the *Hawai'i 2050 Sustainability Plan* Guiding Principles of Sustainability into Chapter 226, the Hawai'i State Planning Act, of the Hawai'i Revised Statutes.

Appendix 2.2 Sustainability (HRS§ 226-108)

HRS §226-108 Priority guidelines and principles to promote sustainability shall include:

- 1) Encouraging balanced economic, social, community and environmental priorities;
- 2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;
- 3) Promoting a diversified and dynamic economy;
- 4) Encouraging respect for the host culture;
- 5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;
- 6) Considering the principles of the ahupua'a; and
- 7) Emphasizing that everyone, including individuals, families, communities, businesses and government, has the responsibility for achieving a sustainable Hawai'i.

Appendix 2.3 Climate Change Adaptation Priority Guidelines (HRS §226 – 109)

1 **HRS §226-109 Climate change adaptation priority guidelines:**

2 Priority guidelines to prepare the State to address the impacts of climate change, including
3 impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas;
4 natural and cultural resources; education; energy; higher education; health, historic preservation;
5 water resources; built environment, such as housing, recreation, transportation; and the economy
6 shall:

- 7 (1) Ensure that Hawai'i's people are educated, informed, and aware of the impacts climate
8 change may have on their communities;
- 9 (2) Encourage community stewardship groups and local stakeholders to participate in
10 planning and implementation of climate change policies;
- 11 (3) Invest in continued monitoring and research of Hawai'i's climate and the impacts of
12 climate change on the State;
- 13 (4) Consider Native Hawaiian traditional knowledge and practices in planning for the impacts
14 of climate change;
- 15 (5) Encourage the preservation and restoration of natural landscape features, such as coral
16 reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the
17 inherent capacity to avoid, minimize, or mitigate the impacts of climate change;
- 18 (6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in
19 response to actual or expected climate change impacts to the natural and built
20 environments;
- 21 (7) Promote sector resilience in areas such as water, roads, airports, and public health, by
22 encouraging the identification of climate change threats, assessment of potential
23 consequences, and evaluation of adaptation options;
- 24 (8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and
25 partnerships between government and private entities and other nongovernmental
26 entities, including nonprofit entities;
- 27 (9) Use management and implementation approaches that encourage the continual
28 collection, evaluation, and integration of new information and strategies into new and
29 existing practices, policies, and plans; and
- 30 (10) Encourage planning and management of the natural and built environments that
31 effectively integrate climate change policy.

Appendix 3.1 Ecosystem Services

Ecosystem Services is a term for the benefits that humans receive from natural resources and processes. These services are grouped into four categories as shown below. Many of these ecosystem services are essential to human life and are provided free of cost. Examples of ecosystem services are often used to illustrate the value of natural processes and resources, such as forest regulation of air quality. Calculation of financial values to replace ecosystem services ties economic benefit to environmental health. The categories below are adapted from the Millennium Ecosystem Assessment 2003: *Ecosystems and human well being; a framework for assessment*, Island Press, Washington DC.

Supporting Services

- Nutrient cycling
- Soil formation
- Primary production

Provisioning Services

- Food (crops, livestock, wild foods, [limu](#), [feral ungulates](#), etc...)
- Fiber (timber, cotton/hemp/silk, wood fuel)
- Genetic resources
- Biochemicals, natural medicine, pharmaceuticals
- Fresh water

Regulating Services

- Air quality regulation
- Climate regulation (global, regional, local)
- Water regulation
- Erosion regulation
- Water purification and waste treatment
- Disease regulation
- Pest regulation
- Pollination
- Natural hazard regulation

Cultural Services

- Aesthetic values
- Spiritual and religious values
- [Recreation and ecotourism](#)
- [Cultural practices](#)

Appendix 6.1 Comparison of State Land Use and County Community Plan Designations and Zoning Districts

1

STATE LAND USE DISTRICTS	COUNTY COMMUNITY PLAN DESIGNATIONS	COUNTY ZONING DISTRICTS ¹
Urban	Single Family (SF)	Residential Districts
		R-1, 6,000 sq ft
		R-2, 7,500 sq ft
		R-3, 10,000 sq ft
		R-O Zero Lot Line Residential
	Multi-Family (MF)	Multiple-Family districts
		Two-family (Duplex) District
		A-1 Apartment District
		A-2 Apartment District
	Mixed Use Residential <i>Note: Proposed new land use designation.</i>	<i>Proposed mix of Residential and Multiple-Family Districts, including neighborhood parks, Business/Commercial, and Public/Quasi-Public</i>
	Hotel (H)	Hotel Districts
		H-1 Hotel District
		H-M Hotel District
		H-2 Hotel District
	Business/Commercial (B) Business/Industrial (BI) Business/Multi-Family (BMF) Service Business/Single Family Residential (SBR)	Business Districts
		B-1 Neighborhood Business District
		B-2 Community Business District
		B-3 Central Business District
		B-CT Business Country Town District
		B-R Resort Commercial District
	Light Industrial (LI) Heavy Industrial (HI)	Industrial Districts
		M-1 Light Industrial District
		M-2 Heavy Industrial District
		M-3 Restricted Industrial District

¹ Examples of listed zoning districts are not exclusive, as additional zoning categories beyond those listed may be appropriate, or amendments may be made to the comprehensive zoning ordinance.

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STATE LAND USE DISTRICTS	COUNTY COMMUNITY PLAN DESIGNATIONS	COUNTY ZONING DISTRICTS
Urban (continued)	Airport (AP)	Airport District
	Public/Quasi-Public (P)	Public / Quasi-Public Districts
		P-1 P-2
	Project District (PD)	Project Districts (PD)
	Park (PK)	Park Districts
		PK-1 Neighborhood Park District PK-2 Community Park District PK-3 Regional Park District PK-4 Golf Course Park District
Rural	Rural	Rural Districts
		RU-0.5 Rural District RU-1 Rural District RU-2 Rural District RU-5 Rural District RU-10 Rural District
Agriculture	Agriculture	Agricultural District
	Open Space (OS)	Open Space Districts
		OS-1 Passive Open Space District OS-2 Active Open Space District
Conservation		

1
2
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4
5

1

Appendix 6.2 County Community Plan Designations

2

3

4 The County's nine geographic community plan regions are: Wailuku-Kahului, West Maui, South
5 Maui, Pa'ia-Ha'iku, Makawao-Pukalani-Kula, Hana, Moloka'i, Lāna'i and Kaho'olawe. The
6 following list includes the designations used in the most recently adopted community plan
7 updates, though not every community plan uses all of these designations. The Lāna'i Planning
8 Commission created one new designation, Mixed Use Residential. The State Conservation
9 District is used to protect and preserve wilderness areas, beach reserves, scenic areas and
10 historic sites, open ranges, wetlands and watersheds; to conserve fish and wildlife; and to
11 promote forestry and grazing. The Moloka'i Community Plan land use map incorporates the State
12 Land Use Conservation District boundary since the County has no jurisdiction within those areas.

13

14 County community plan land use designations are not regulatory. The following list of
15 designations provides general descriptions of types of uses.

16

17 **Single-Family (SF):** This includes single-family, duplex, and ohana dwellings.

18

19 **Multi-Family (MF):** This includes apartments and condominiums having more than two dwellings.

20

21 **Mixed Use Residential (MUR):** A proposed new designation that would include a mix of single and
22 multi-family residential, neighborhood parks, business/commercial, and public/quasi-public uses.

23

24 **Hotel (H):** This applies to transient accommodations. Such hotel facilities may include permissible
25 accessory uses primarily intended to serve hotel guests.

26

27 **Business/Multi-Family (BMF):** This includes a mixture of retail, office, and commercial services
28 which are oriented to neighborhood service and single family and multi-family residential uses.

29

30 **Service Business/Single-Family Residential (SBR):** Includes single-family dwellings with
31 small-scale and neighborhood-oriented businesses and services that are primarily established in
32 existing residential dwellings or other structures. The business use should be compatible with the
33 physical character of the residential neighborhood.

34

35 **Business/Commercial (B):** This includes retail stores, offices, entertainment enterprises and
36 related accessory uses.

37

38 **Business/Industrial (BI):** Includes a mixture of warehousing, distribution, service operations,
39 retail and offices uses.

40

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1 **Light Industrial (LI):** Denotes warehousing, light assembly, service and similar industrial
2 operations.

3
4 **Heavy Industrial (HI):** Denotes major industrial operations with potentially noxious impacts due
5 to noise, airborne emissions or liquid discharges.

6
7 **Airport (AP):** Includes all commercial and general aviation airports and accessory uses.

8
9 **Public/Quasi-Public (P):** Includes schools, libraries, fire and police stations, government
10 buildings, public utilities, hospitals, churches, cemeteries and community centers.

11
12 **Project District (PD):** Provides for a flexible and creative planning approach, rather than specific
13 land use designations, and allows for a variety of uses in accord with each individual project
14 district objective.

15
16 **Future Growth Reserve (FGR):** Recognizes possible areas of urban growth that would occur
17 beyond the projected ten year time frame of the community plan update, and encourages
18 planning for infrastructure development and use allocations.

19
20 **Park (PK):** Applies to lands developed or to be developed for recreational use, including public
21 and private active and passive parks. Golf courses are identified as "PK (GC)" in order to
22 differentiate golf courses from other kinds of park uses.

23
24 **Rural (R):** Protects and preserves areas consisting of small farms intermixed with low-density
25 single-family residential lots. The requirements of the State Rural District should govern this
26 area.

27
28 **Agriculture (AG):** Indicates areas for agricultural activity, in keeping with the economic base of
29 the County and the requirements of the State Agricultural District.

30
31 **Open Space (OS):** Intended to limit development on lands that may be inappropriate for intensive
32 development due to environmental, physical or scenic constraints, including shore-line buffer
33 areas, landscape buffers, drainageways, viewplanes, flood plains and tsunami-prone areas.